Design for Collective Action

A Digital Platform for Network Governance and Collaboration

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Abstract

The 2018 IPCC special report highlights the threat of global warming of 1.5 ° C as early as 2030 with a global reduction of anthropogenic CO_2 by 45% needed to avoid overshoot. It calls for far-reaching, transformational social and ecological adaptation to meet that reduction. In response, this thesis undergoes a design thinking process to create a more equitable and ecologically sustainable world with a design outcome or "intervention" as a goal. Additionally, the design intervention needs to address the limited timespan for action with a far-reaching or radical outcome. Based on these premises, context development identifies the global pervasiveness of capitalism and neoliberalism with resulting inequality, social isolation and a fundamental misconceptions of what it means to be human in society as particular leverage points for radical change. Collective action of some kind will be needed to address these leverage points. A literature review studies three concepts in competition to capitalism and neoliberalism with transformative potential for collective action: the commons, peer production and social innovation. These concepts are synthesized into common characteristics and are used to inform the design outcome which are: distributed networks, scale / context, self-organization, autonomy, transparency and democratization with inclusive participation. Further, a user-centered survey of registered associations in Finland is done to understand the governance and collaboration among potential non-market users and how they might align with the dynamics of the commons, peer production and social innovation. The survey reveals that associations with the purpose to "build community" are most aligned with the concepts, with "to provide useful services" in second and "to change society" least aligned. Further, it reveals that associations already "team up" with upwards of ten other organizations, and most strikingly that heightened satisfaction correlates to heightened levels of inclusivity, democratization, and autonomy. This information gathering from the inspiration phase leads to the ideation phase with the beginnings of a platform concept. A digital collaboration tool for network-based collective action is proposed as a means to address the issues of capitalism and neoliberalism thereby creating a more equitable and ecologically sustainable world. This thesis contributes to knowledge of novel social organizing principles and proposes a design intervention to implement them. However, the process ends at ideation and the true impact as well as the limitations cannot be adequately addressed. The concept should be developed further and prototyped to assess its basic viability to create equality and ecological sustainability.

Keywords Commons, Peer Production, Social Innovation, Capitalism, Collective Action

INTRODUCTION

The driving force behind this thesis rests in three problem framings. The problem framings set the stage for the research to unfold, as guideposts to steer a design process. In terms of design thinking, the problem framings can be thought of as the "brief," or design challenge which are as follows:

Problem framing 1: To create a more equitable and ecologically sustainable world.

Problem framing 2: There is a narrow window of time to act to avoid potential global catastrophe

Problem framing 3: Therefore, a design intervention would need to focus on more "radical" or "far-reaching" possibilities.

In relation to these problem framings, the design work that unfolds is not so much about the process of design but the content of it and is therefore not particularly interested in the question of "what is design?" It is rather an attempt to practice design in a way that reflects design thinking as an approach for tackling wicked problems (Manzini, 2015, p. 34), which are connected and interdependent, like the issues of equality and ecological sustainability in problem framing 1.

In the broadest sense, this thesis explores profound notions of human social organization in relation to governance, value creation, behavior and society. Value creation is related to the process of creating use value in relation to people's needs (and hopefully other species and the planet) and capturing that value through monetary exchange which can be observed from the individual to the societal level (Lepak, Smith, & Taylor, 2007) (Bowman & Ambrosini, 2000). Today, the value creation is largely seen within the framework of capitalism, which the concepts in the literature review approach differently. Those concepts are: the commons, peer production and social innovation.

Fundamental to the processes of governance, value creation and even the notion of society is the need for some form of communication. That much is clear—especially from the concepts in literature review that imply communication based on collaboration with shared vision and less on competition and coercion. It is my observation that if a more equitable and ecologically sustainable world is to be addressed, so too will processes of communication as it is so inherent to governance, value creation and society.

But at an even deeper level, the discussion touches on our metaphysical understanding of the purpose of life and what it means to be human. As will be highlighted later, if we continue to deny our basic social instincts in the society we create, we have set ourselves up for failure—a failure that has evolved into global interwoven crises. Obviously then, this work is situated within a variety of research disciplines. One could easily see a high degree of sociological influences, organizational theory, economics, sustainable transitions and theory of social movements.

To me, this gets at the heart of sustainability, which is interdisciplinary by nature. As Portney (2015, p. 4) states, sustainability is essentially about the notion that "the earth's resources," with my own emphasis on both social and natural resources, "cannot be used, depleted and damaged indefinitely" by humans, at least not if the complex web of life that has developed over hundreds of thousands and even millions of years is to persist into the near future in a fair and just way. Clearly then, the notion of sustainability raises fundamental questions of social order and human behavior.

Further, the advent of the Anthropocene, due in large part to a "great acceleration" associated to the development of an economic and political calculus (Lane, 2019), reveals that humanity and how it organizes itself is the central focus of sustainability. Therefore, the research and literature examined in this thesis revolves around how humanity organizes itself.

This economic and political calculus, one associative of capitalism and neoliberalism, is highlighted prior to the literature review in a section entitled "Context." The context section is meant to dive into the relevant issues related to the problem framings. Capitalism and neoliberalism, as currently constituted, are described as counterintuitive to our basic social tendencies and a major source of social and ecological destruction. In relation to the design thinking process, the context section is the beginning of the "inspiration" phase (Brown & Wyatt, 2010, p. 33) which is essentially an information seeking process that could include various methods. The context describes how since neoliberalism has colonized the globe (Manzini, 2018, p. 162), infiltrating nearly every aspect of life and governance with the "free" market-based economy and associative profit motive, a new paradigm for social organization could not come at a more opportune time.

Following the context section and because of the research during this phase, a literature review evaluates three highly relevant research streams which are cited as having potentially radical implications for society in terms of enhancing equality and ecology as a counterbalance to capitalism and neoliberalism which to a large extent have the opposite effect. The literature review of these concepts is useful in that it helps to guide the development of a design intervention afterwards which is meant to enhance equality and ecological sustainability as called for in the Problem Framings.

The concepts in the literature review section are the Commons, Peer Production and Social Innovation. The literature review evaluates these three research streams specifically to counterbalance the effects of capitalism and neoliberalism identified as barriers to equality and ecological sustainability. Commons research sits in stark opposition to market-based logics of capitalism and conveys the immense value and capabilities of local self-governance to manage common-pool resources sustainably. A newer field of research for Commons is based in the digital environment where the production of value is not held within strict intellectual property regimes that extract profit through scarcity but produce value that is open-access and therefore abundant. Peer production is an example of just this. Through commons-based peer production, autonomous actors freely self-organize in the digitally-networked environment to produce value, typically in the form of software, that is freely distributed and non-market. The ecological implications manifest indirectly, as peer production opens the door to new means of collaboration that could enable more ecological practices. Peer production does not necessarily refer to non-market value production, but like the local self-governance of the commons, does represents a different mode of collaboration and organization which does not rely on centralization and coercive hierarchies. Just as the commons and peer production highlight the importance of novel forms of collaboration based on democratization, inclusivity and a higher level of equality, so does social innovation. Social innovation centers around a problematized state of unmet social need, drawing in non-traditional networks of actors, notably including civil society, to address the issues. The evaluation of these research disciplines culminates in a synthesis of characteristics that are meant to inform a design intervention.

In line with human-centered design (Brown & Wyatt, 2010), I wanted to approach perceived potential users of the design intervention to support, or even refute, the knowledge gained during the literature

review. For this, I surveyed the leadership and management of approximately 60 associations in Finland. Legally registered associations were targeted specifically due to their proximity to the third sector or civil society where novel collaboration in line with the commons, social innovation and peer production could be found. If nothing else, associations are situated outside of the private/public dichotomy which all three concepts blur with the inclusion of citizens. As the concepts emphasize the importance of citizen-based value creation, there is also a connection to the notion of the grassroots. Seeing as how a survey is a quantitative method, but data on activities of civil society and the grassroots can exist outside formal measurement structures, associations functioned as a best-fit for possible users of the design intervention and also an entity that I could easily survey. The survey resulting in interesting information that could stand on its own as a valuable contribution to the understanding of the governance within associations in Finland.

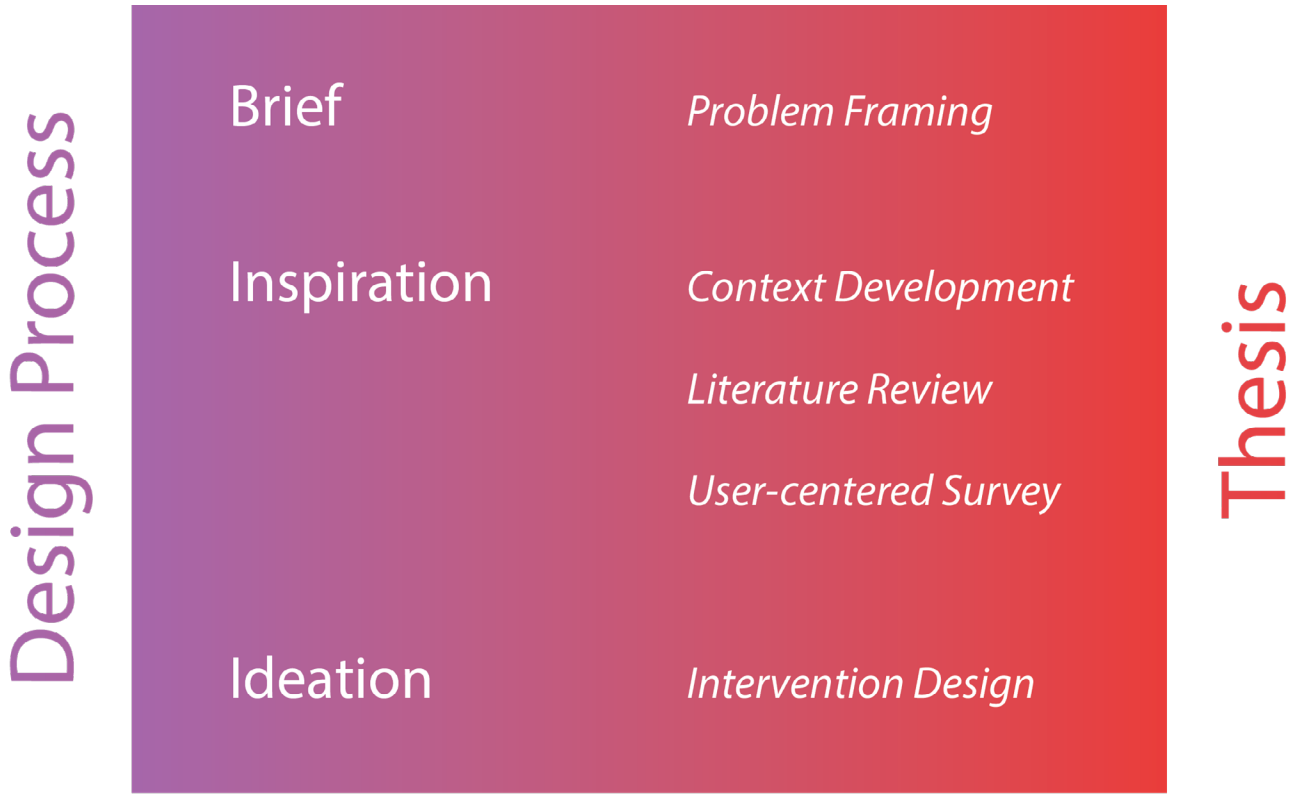
After the context of the problem framings developed, concepts evaluated in a literature review, a synthesis of the concepts produced and analysis of the survey are completed, the thesis turns to the ideation phase of design thinking with the creation of a platform that acts as a digital mechanism for network governance and collaboration. A description of the reasoning for a platform and collaboration tool, the logic and several key functions are laid out. Several graphics and user journeys are also described to enhance comprehension.

A brief discussion wraps up the thesis with an acknowledgement that the design outcome is as much about the design as it is about the process and there is always room for improvement of the process. With that being said, the ideated platform does fit the problem framing. Still there are many ways in which the platform could be used in ways that are not addressing the problem framing and further development would be necessary to articulate the true potential of the platform.

METHODS

I would like to further connect this thesis to Design thinking which has a general structure of three phases which include, Inspiration, Ideation and Implementation (Brown & Katz, 2011, p. 381). Often, the design process is kicked off with an initial “brief,” or design challenge which would be the problem framings in this case. The context is the beginnings of the Inspiration phase, which continues with a literature review and an online survey. After this, the Ideation phase is represented by a design intervention. The implementation phase is not within the scope of this thesis. The graphic below places the structure of the thesis in reference to a design thinking process.

Diagram 1:



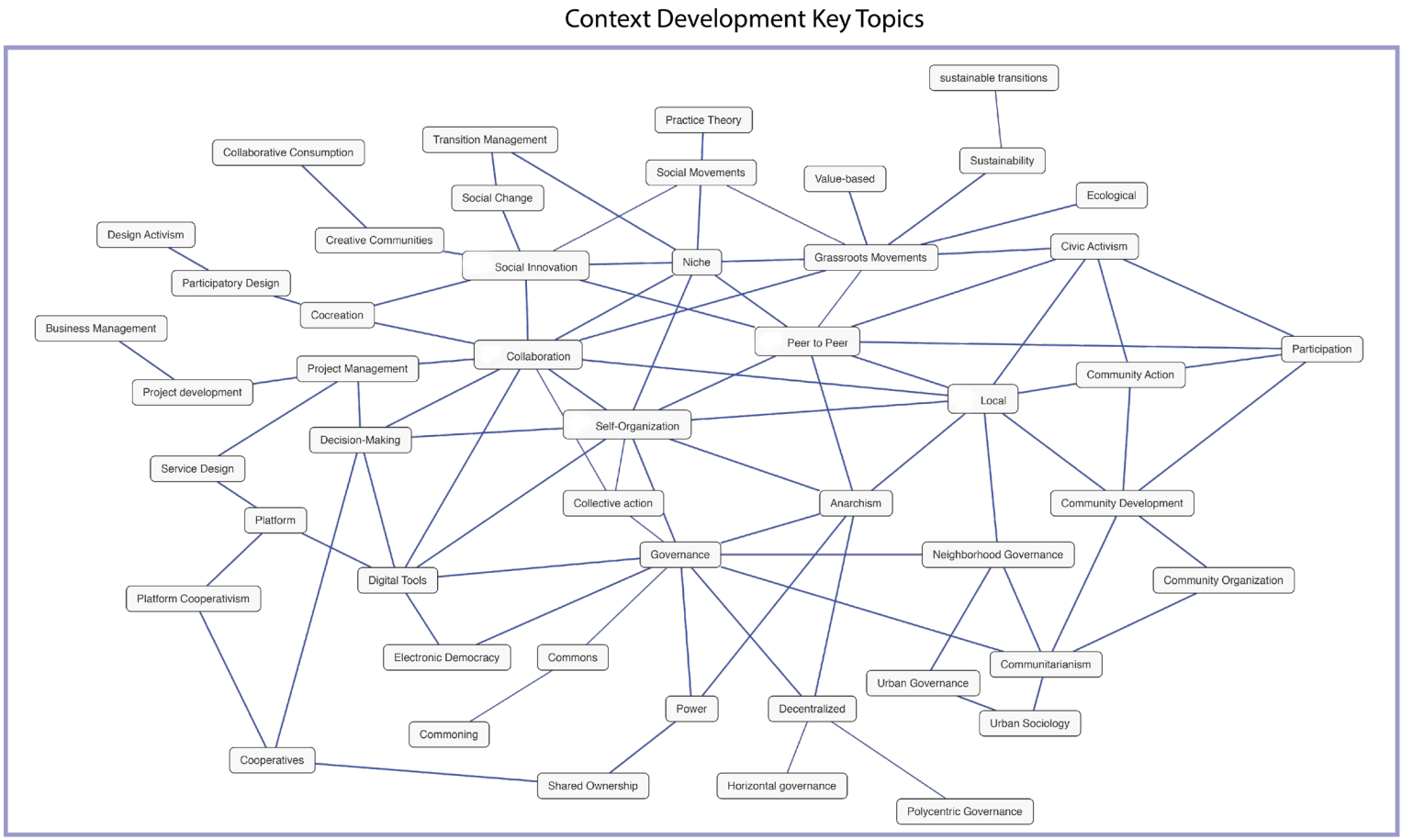
PROBLEM FRAMING & CONTEXT DEVELOPMENT

From the outset of this thesis, I wanted to produce a design outcome that would be aimed at creating "a more equitable and ecologically sustainable world" (problem framing 1). Given the latest report by the Intergovernmental Panel on Climate Change detailing the threat of global warming of 1.5 ° C as early as 2030 and the necessary global reduction in anthropogenic CO 2 of 45% by that time to avoid 1.5 ° C warming (IPCC, 2018), I undertook this effort with the belief that we have a narrow window of time to act to avoid potential global catastrophe (problem framing 2). Therefore, the design outcome would need to focus on more "radical" or "far-reaching" possibilities (problem framing 3).

This last point is, of course, debatable – as is the meaning of radical and far-reaching. This highlights the political nature of this thesis and of the debate surrounding interventions which depend highly on values that I touch upon mainly in the literature review. To debate the need for radical change, one could argue that many small changes on a global scale could be a solution to avoid overshooting 1.5 ° C. This in itself could be considered radical. Regardless, as time goes on without sufficient reductions in resource use and emission, the more necessary it will be to consider what could be called "radical." As the literature review should illustrate, the term radical, upon reading, may seem more like a misnomer. In fact, the more accurate phrasing might be "fundamental" rather than radical – as in, fundamental changes are needed, and whether the interventions are radical or not is not as relevant so long as they are fundamental. Understanding what a fundamental change is requires understanding that which is fundamental to the status-quo. What I determine to be fundamental to the status-quo should become clear in the context development and literature review.

I of course do not cover all that is fundamental to a general global status-quo. That would paint too broad a brush and exceed my reach. However, I think I have narrowed in on certain status quo characteristics to society that are to a large degree global and prominent in academic literature. The underlying desire for a more equitable and ecologically sustainable world and belief that radical or fundamental changes are needed sets the stage for problem framing. With this problem framing in mind, I began broad context development of the problem framing with the key topics displayed in Diagram 2. These key topics for the context development were developed through brainstorming, general reading of interest, academic literature, learnings during the Creative Sustainability program at Aalto University as well as the Urban Studies and Planning program at University of Helsinki.

Diagram 2: Context Development Key Words



One may note the absence of concepts that are purely environmental in nature in Diagram 2. This is due to the fact that the issues of global warming and environmental degradation in terms of sustainability are human caused. Therefore, interventions must necessarily be human-based, meaning, social in nature. There are surely arguments for purely technocratic solutions like resource efficiency, which shows no signs of absolute decoupling from carbon emissions (Jackson, 2009, pp. 71-81), geoengineering, or carbon capture. Regardless the degree of techno-fixes employed, they must do so entangled within political institutions and social systems, in essence, socio-technical regimes. Therefore, the context development illustrated in Diagram 2 of my problem framing has taken a predominantly social dynamic, since solutions can only come through human actions.

The process of developing this thesis is informed by Design Thinking practices in which the initial problem framing of a "more equitable and ecological world" with "radical solutions" has evolved through a process of context development (seen in diagram 1), research on academic literature, a survey to capture potential user information, and lastly with the beginnings of a design intervention. An example of the development to problem framing can be seen perhaps most clearly in the introduction which heavily references the dynamics of capitalism and neoliberalism, which were not highlighted in the initial problem. The additional context of capitalism and neoliberalism described in the context section represents part of the "inspiration phase" of the Design Thinking process.

Problem framing 1, as a design goal, relates to my personal values about what is important and how I developed these values is not something that I can illustrate with much certainty but to say that they are informed by life experience and non-academic but also academic research. I am therefore not starting with an arbitrary and open-ended system that I study and then define problem areas but have already narrowed down my problems and goals considerably. This is essentially the fingerprint of the researcher that will reflect in the course of the thesis, i.e., in the writing, data, and design outcome. Design thinking and academic research do not always go hand in hand. If this was purely academic and to a degree "non-creative" work, it may not be appropriate to see the fingerprints of the researcher in the work. However, Design Thinking allows for the reframing of academic work that begins with a desired state which one must design toward. This thesis therefore entails positive research (what the world is) as well as normative research (what the world ought to be) (Velasquez, 2008). I have attempted in this thesis to complement the work of a designer with the work of an academic researcher by using methods of academia like rigorous literature review and a user-centered survey to inform the design outcome.

It should be noted as well that a more equitable and ecologically sustainable world (PF1) is at its heart a discussion about power in society – even power between species. A more equitable world means a world where power is balanced in a way that acknowledges freedom and rights more suitable to the needs of the living and non-living than is currently done. A more equitable world is not solely about economic equitability and wealth. Equality is multi-faceted and is expressed in a myriad of interconnected ways. At the most essential level, societal equality is about inclusive access to the levers of power, to the means of decision-making. This is not something I will dwell on now, though, but the topic persists throughout the entirety of this work.

LITERATURE REVIEW

Using the mind map of the conceptual context in Diagram 1, various word groupings were used to search academic databases. For instance, "community development," "grassroots," and "sustainability," was one grouping. Another was "communitarianism," "neighborhood," "governance," and "local." Through the process of context development with various word groupings, I searched and collected literature. Three streams of literature came to the fore as fitting the problem framing of a more equitable, ecological world and radical solutions. Those streams of literature are: Commons, Social Innovation, and Peer Production. These three streams of literature were chosen based on the prevalence in the literature that I came across in reference to my word groupings and their description as radical and potentially powerful alternatives to current socio-technical regimes. Similarly, I knew it would be impractical to describe in detail all of the concepts

I came across, yet illogical to assume that just one concept would provide for a suitable design outcome aimed at problem framing 1. Three concepts, especially with their prominence, seemed a suitable number to investigate further. What this means is that whatever design outcome there is, it will be heavily influenced by these concepts as they have been deemed crucial to PF1 and PF3. In a sense, the design outcome is meant to enable or at least enhance the realization of these concepts by users of the design intervention. Once identified as critical, realizing aspects of these concepts in society became the goal of the design outcome.

I then took to focusing on these streams of literature to define in detail the aspects of each as best I could. However, before going into detail about the concepts, I felt it necessary to take a step back and widen the scope with general context. Discussing these concepts without a context that they are in relation to, would not have told a holistic picture. As Bern, (1995, p. 172) says, one of the first questions to ask about a literature review is if is interesting and if not, "consider extending its reach or setting it in a broader context." Diving straight into the concepts of the commons, social innovation, and peer production would have diminished their general relevance to an audience who might not understand their significance otherwise and therefore make the topic less interesting. Further, Bern (1995, p. 173) states that for clarity, its important to tell a complete story. This simply could not be done without providing a context with background information about society before introducing the concepts.

I do not go into specific detail about case studies while describing any of the concepts. Many case studies have been articulated over many decades. I concede that there is plenty to learn still with case studies but instead I am interested to understand what characteristics of each concept are essential, overlapping or even dissimilar to inform problem framing 1 and a potential design intervention. For the purposes of this thesis, it is not necessary to develop a universally accepted definition of social innovation, peer production or the commons. This would be a challenge. For instance, a term like Sustainable Development, with a well-established definition via the Brundlandt Commission, still does not make for certainty whether a specific instance of development represents sustainable development. A refined definition based on the literature would not necessarily be crucial to a design intervention either. In this discussion, the purpose of describing these terms, as much as possible, is to understand patterns that emerge among them and use that information for a design intervention aimed at Problem Framing 1. To aid in that goal, from these three streams of literature, I attempt to make a synthesis of common values and problems to consolidate the discernable and valuable aspects of the concepts in terms of Problem Framing 1. This kind of synthesis of the commons, peer production, and social innovation is identified by Webster & Watson (2002, p. xiv), as being one of the primary reasons for a literature review, in that there is a an established body of information that could benefit from analysis and synthesis.

An additional value of consolidating the three concepts' characteristics in terms of Problem Framing 1 became clear as I began to create a user-centered survey. I realized that the synthesis could be the template to use when creating questions for a user-centered survey. For a user-centered survey, you need to know your users. However, when creating a design from scratch, the user is not necessarily known. However, I could use the survey not only to get information from potential users, but to find them, as well. To this end, the survey is also meant to identify a target population which exhibits a relatively high degree of characteristics inherent to social innovation, commons, and peer production and so the synthesis was used to direct the formation of the questions. Therefore, the

synthesis of the concepts allowed for the creation of a survey which could attempt to sufficiently identify the existence of respondents who would also be users of the design outcome. In this sense, the survey is meant to simultaneously identify a target population from a general population of associations and gain useful insight into that target population. The reasons I conducted a user-centered survey in the first place will be described in the next section.

ONLINE SURVEY

As stated, the intention of this thesis is to produce a design outcome. The methods to do this are numerous. I knew that studying the system or context of PF1 would be necessary as evidenced through design thinking, which lead me to a literature review and the concepts of commons, social innovation and peer production. However, as the reading progressed, I felt a purely theoretical approach would not be sufficient to operationalize a design outcome. Of course, it could be done based on theory alone, but I felt more information would be needed for a successful design intervention. I wanted to get more practical, real-world information to inform the design.

The two likely options for this would be through case-study or a survey. Both are valuable in their own ways. A well-chosen case study could provide excellent insight into the innerworkings of a commons, peer production and social innovation – perhaps all at the same time. However, the generalizability would come into question and in reference to PF3, the information would need to be far-reaching in scope and this is one reason why a survey was chosen. A survey can take the form of in-person interviews, phone interviews or questionnaires. A questionnaire can be more complex, can cover more sensitive information, cost less and potentially reach more people (Abbott & McKinney, 2013, p. 210). Online surveys have proven to be a promising tool with low barriers to access (Edyburn, 2002). For this I used the service called SurveyMonkey.

A drawback to a survey is that the focus becomes breadth and not depth, so the information gleaned may tend to be superficial and not as valuable as hoped for. Even more, the breadth of an online survey is in question as response rates can be low which ultimatey was the case for this thesis. Still, with a carefully worded survey that gets to the essential characteristics you wish to understand, it is possible to get valuable information. Further, with a large enough population, even with low response rates, patterns can emerge. So, while a survey may be superficial, it is capable of identifying patterns among large data sets. This is not something that a case study does well.

As stated briefly in the last section, the survey is two-pronged. By this I mean I needed to get valuable information from potential users while simultaneously identifying potential users who I want to target with my design intervention. To rephrase, the survey had to: 1) Identify potential users for a design intervention meant to harness the synthesis insights from the three key concepts 2) understand how those users do certain activities (in relation to the synthesis of the concepts). This is what makes it a user-centered survey. The degree to which respondents associate with the characteristics of the synthesis of the concepts, the more valuable their feedback in terms of a design intervention that is targeting to enable the values of the concepts in the literature review.

A survey should identify an intended population and a target population (Laaksonen, 2018, p. 198). The term population refers to people/groups which have particular and distinct characteristics. According to Laaksonen, an intended population "is the population that a user would like to get or

estimate ideally but it is not possible always to completely reach," so instead a target population is chosen, which "is such a population that is realistic." In that case, I have an intended population of organizations, communities, or groups that associate highly to the synthesis of the concepts in the literature review since I want to identify their ways of working to inform a design intervention. However, since I have the assumption that individuals/groups who collaborate in a way that align the most with the concepts are likely not legal entities, i.e. companies, universities, political parties, etc., then I will have to identify a best-fit population. That best-fit, or target population, would be associations in Finland. I explain the logic of choosing Associations more in the Survey Overview chapter in the Purpose section. Another point that Laaksonen makes is to then identify the frame population which are the "lists or registers that consist of the units of the target population." For this, I am using the register of Asiakastieto, specifically the associations which have supplied their email. As the concepts I chose to focus on are activities that are at the least non-traditional and at most completely below the radar of those who are not directly involved, identifying potential users was even more a challenge because they are few and far between. However, during the literature review this issue began to resolve itself. The literature review highlighted the role of civil society and grassroots groups heavily. Interestingly, as research of grassroots groups often focuses on qualitative study, quantitative study could uncover missed opportunities (Voorberg, Bekkers, & Tummers, 2015). So, it was within civil society that I would find a suitable target population, but I will elaborate on this more after the literature review where the more details of the survey are laid out in the survey overview.

Now with a list of associations, I had to design a survey which, again, identifies potential users of a design intervention that aligns with the concepts and understands various aspects about these users. The next question then becomes: how will I know when an association aligns with the concepts of social innovation, the commons and peer production? That is one reason for the synthesis of the concepts at the end of the literature review. While this synthesis is valuable in its own right by identifying similar characteristics in three areas of research, it is also valuable in making the concepts more legible. The synthesis of concepts combines overlapping pieces and identifies commonalities. The synthesis then becomes a tool to identify associations who have characteristics similar to the concepts and also becomes a point of reference for designing an intervention that aligns with the concepts, as well. The synthesis is not enough for the survey, though, as a questionnaire requires questions. I have designed the questionnaire in a way that several questions can reveal characteristics of associations that connect to the synthesis and concepts. This was done through a series of questions that first identify the purpose of the association, which broadly indicates the associations affinity to the concepts, and then several more detailed questions which were broken up into categories that will be explained.

The purpose, or at least stated purpose, of the association was determined by:

Q3 "Which one of these statements best fits the purpose of your association as a whole?"

Three main focus areas emerged in the responses which relate to the purpose of the associations, which were "to change society," "to build community" and "to offer useful services. These became the overarching frames for comparison between associations and helped to determine other metrics of organizational effectiveness like efficiency, clarity and satisfaction with communication.

With this broad distinction based on purpose, I have a category of questions that were specifically aimed at identifying an association in relation to the synthesis of concept. Those questions are:

Q6: To what degree are all members of the association involved in key decisions?

Q11: To what degree do you have an effective process in place to allow members to create new projects?

Q12: To what degree do you have an effective process in place to establish rules that all members have helped to create?

This may seem like an insufficient amount of questions to identify an associations alignment with the concepts but I did have to balance the fact that I was also looking to receive information on a whole host of other topics, like how many digital platforms are used and how easy it is to turn debate into decisions and there is only so much time I can expect people to spend filling out a questionnaire. Still, I think the three questions I use to identify if associations align with the concepts work well. Question 6 addresses the topic of democratization with inclusive participation. Question 11 addresses the topic of autonomy, self-organization, distributed networks and decision-making. Question 12 addresses transparency and democratization. All three of the questions also broach the topic of scale/context in some way. If more people are involved in a wider variety of activities, the question of how to handle the increased scale comes into play immediately. I could have spent more of my respondents limited attention span on more of these questions, but I felt this was still sufficient. After all, measurement can always be more nuanced, but sometimes it will just have to be good enough.

What I have done in the survey analysis, as seen through diagrams 16-19, is create other categories based on the questions in the survey that highlight particularly relevant topics for the activities of organizations. One category, which I have already mentioned, is the synthesis of the concepts which helps me understand which associations align most the concepts. This category is particularly useful because the design intervention I create is meant to align with the synthesis of the concepts, and if respondents do, then I know other characteristics about them now and have new information on the users I am trying to design for. That is why this category was created. In a perfect world, perhaps I could have designed questions that worked even better at identifying the respondents who align with the synthesis of the concepts. However, I think I have a few that work well, and Diagram 16 shows them.

The next two categories were created after the survey was done. After reviewing the questions, I saw two relevant categories emerge out of the questions I asked which I called “efficiency” and “clarity and satisfaction.” The questions that are a part of the efficiency category are:

Q9: To what degree are you satisfied with the association’s ability to turn debate among members into decisions?

Q10: To what degree are you satisfied with the association’s ability to turn decisions into concrete action?

Diagram 17 in the survey analysis section is based on the category of efficiency. This category speaks to the idea that is often articulated, which is that non-hierarchical, decentralized governance, increased transparency and democratization with inclusive participation can create inefficiencies or, on the other hand, can even outperform the alternative (Bartlett, 2018, p. 217) (Erdal, 2011). Whether this is true or not, I do not think my survey proves either way but seeing as how efficiency is discussed in relation to the concepts in question, I thought it necessary to assess this, as well. While I should avoid worshipping at the altar of efficiency, as some do, it is still a key metric to consider for being effective and even successful and so I should be considering it. Therefore, as a key metric, I wanted to use this as a point of comparison between the key purposes of the associations who responded. I would argue that a slower decision-making process in organizations or groups is not necessarily a bad thing and even that it can be positive. Rapidity does not manifest success. Making the right choices, which manifest through the right processes, can breed success and a certain degree of efficiency may not be "right" for the context. Further, to properly critique the notion of efficiency, you should first question the common conception of success. What is success? Do we employ that term in a way that really benefits people or, say, companies' profits? Regardless of these deeper questions, efficiency does lead to market-based advantages over competitors when you can go to the market faster and do so at lower costs, resulting in cheaper products for people before your "competitors," as it is framed in classical economics. Even outside of markets, efficiency can lead to greater effectiveness in whatever an organization is doing.

The last category that I created is based on clarity of communication and satisfaction with communication within the association. Those questions are:

Q7: How messy vs clear is the communication within the association as a whole?

Q8: How satisfied are you with the communication within the association?

This is conveyed in Diagram 18. The logic here is that clarity refers to communication that you can understand. If one can understand, or at least thinks they understand communication, then the proper action or reaction can be taken. It means that it isn't "messy" and certainly it is not always suitable to have messy communication. I note elsewhere that just because communication is clear does not mean it is the right kind of communication or leads to better results. However, the point of communication is often to be understood and clarity is one way to do that. So, I think it clarity is a helpful metric.

Satisfaction with communication is another useful metric. Obviously, people want to be satisfied with their communication. Communication is an effort to convey some kind of message, a specific one that you want something or someone else to understand in the way that you want them to understand it. If people are able to do that with their communication, there is a natural tendency to be satisfied and this acts as a kind of psychological reward for "successful" communication. Therefore, satisfaction is linked to whether or not the respondents in the survey thinks their communication was successful. This, I think, is relevant and useful.

Diagram 19 is the long matrix after the clarity and satisfaction matrix which sums up the results of the three categories into one. The reason this is done is because the combination of the matrix that identifies the respondents who align with the concepts, who are efficient and rank high on clarity

and satisfaction are perfect respondents to design this intervention for. They relate to the concepts more, they're more efficient and they're clearer and more satisfied with their communication. One could argue the relative importance of these categories, but I think there is an argument for those ranking high in the categories of efficiency, clarity and satisfaction as being a possible recipe for success. On top of that, an alignment with the concepts makes for an even stronger case for narrowing my interests. Therefore, the purpose which ranks highest in these categories could be the most relevant respondent to design for. Perhaps these are the users I should be designing for.

Lastly, in the literature which discusses one or many case studies, it is often mentioned how they were able to identify these case studies to start with. Perhaps it is easy to find useful case-studies, but regardless, I think it would benefit others to know how that case study came to the attention of the researcher in the first place. I am not inclined to think case studies are easy to find, either. It seems to me that there is value in having a system which identifies interesting case studies that can yield particularly valuable insights. As this survey incorporates a range of concepts that are quite broad in their own right, this survey could also act as a tool to identify users that fit certain criteria, or a "persona," that would be valuable to other researchers who are looking for case studies. By applying this survey to various data sets, perhaps researchers could efficiently identify interesting activities in relation to commons, social innovation and peer production and follow-up with case study.

INTERVENTION DESIGN

A fully functional prototype is not the end point of this thesis. However, it is the beginning of a prototype which rests still in the ideation phase. It can be seen as call to action for others to build on the work and take the concepts and designs further. In a sense, the design and pieces of a prototype act as a white paper highlighting specific needs and research-based intervention designs. Often in the design process a solution is delivered at the end. I refer to design intervention instead as solution implies a definite endpoint, but any design outcome must grapple with the need to continually improve and adjust as the design is used in practice by users (Meinel & Leifer, 2011, p. xv).

CONTEXT

Thus far, I have described the problem framings upon which this thesis is situated. As a part of the design process, I have done some background research into key topics outlined in the methods section that highlighted the fact that how humanity organizes itself is of tantamount importance to the problem framings. This section seeks to describe what I saw as the most prevalent and most important critique that was raised during my background research that helps to situate and give context to the concepts of social innovation, the commons and peer production. In fact, it is this critique that was the determining factor for taking a deep dive into the concepts in the literature review. To set the scene here, I must first step back in time but also in scope and think on a quite broad and abstract level.

So, if we were to look back on history, one could note that humanity has certainly achieved a lot since our cave dwelling days. If one was to ask what our greatest achievement was over all this time – what then would it be? One could say, without fear of audacity, that the creation of Society has been one of the greatest.

That sentence has two separate statements. First that this amorphous, abstract thing called Society is one of our greatest achievements and second that it has be "created." To address the prior, I consider Society, to make it less abstract, as the collective embodiment of complex interpersonal relations that take material and non-material forms which have been designed, consciously and unconsciously, over millennia through the dynamics and evolution of the social, which can be seen as "the connectedness of a human being to others" (Wagner, 2001, p. 128). This interplay between the social and its collective embodiment into some sort of whole called Society takes shape in every building you walk into, every book you read, every interaction you have, every groundbreaking invention, even the thoughts we have in our head. Society is embedded in nearly everything we do. Society exists everywhere humans exist. It is our tool for organizing reality—our very existence. It is our platform for communication, knowledge, understanding, information and engagement with the external. Could you say that this is not one of our greatest achievements?

One of the most astonishing aspects of society at large is that it is capable of being almost anything. Putting aside the basic constraints caused by historic forces of path dependency and of the natural environment for a moment, society is essentially arbitrary. As the output or creation of social relations, collectively, humanity decides on various scales through our actions, rules, and institutions what shape society takes and what is possible through society. Ultimately, we create that shape.

Once a shape of society is established, it reproduces and maintains itself through us on a daily basis but is in a constant and dynamic tension with a plurality of realities that others or even ourselves possess. These myriad realities together produce a society of particular shape with particular trajectories, inertia/path dependency and opportunities for transition or equilibrium. At times, "surges" occur when various directionalities align and solidify a new social order, like industrial modernity (Kangera & Schot, 2018). In this sense, the creation, reproduction and evolution of society is fundamentally a design task and we are all a part of this task every day as we either perpetuate the design, stake out claims for new design futures through practice or both. This activity can be seen as one of our most creative and important tasks in life.

One cannot simply put aside the forces of history and the constraints of the planet, though. Aristotle wrote of the human born as a blank slate or "tabula rasa" in Latin, which is debatable (Orbell & Shay, 2011, p. 88), but so far as that is true, we then inherent a script given to use by our social history which is then acted out on the grand scale of society every day. This script is something that we have in our power to rewrite. In fact, what we inherit socially, through the passing down of the knowledge, information, mores and taboos, allows for adaption and evolution of society (Richerson, Boyd, & Paciotti, 2002). This social script doesn't have to start from scratch, but rather needs to be written with the design of a social order – a shape of society – that aligns with our basic human needs and that of the planet. However, as Beck and Beck-Gernsheim (2002, p. 18) put it, "the question of whether we still have the strength, the imagination – and the time…is, to be sure, a matter of life and death."

In fact, humanity is on the precipice of major social transformation (Unceta, Castro-Spila, & Fronti, 2017, p. 406). A new paradigm for social organization is emerging with a new set of values and corresponding institutions to support it. As we will discuss, three strains of research, the commons, peer production and social innovation, encompass new forms of collaboration, value creation, meaning and knowledge that have transformational capabilities. Some of these emerging alternatives, with new meanings for the idea of civil society, are seen as a "radically different form of society" (Euler, 2016, p. 93), "fundamental transformation in the urban economy" (Longhurst, 2016, p. 70) and a "new model of democracy" (Driver, 2012, p. 160). They are steeped in new but also quite old forms of practice among participants and have created a wide range of material artefacts too many to count here. Regardless of their physical or digital manifestation, the activity central to our discussion in relation to these concepts is of collective action, which can be defined as:

"action coordinated between a number of agents with the objective of changing a particular situation, social relations, social conditions or policy programmes that will lead to an improvement of the conditions of people in society" (Gibson-Graham & Roelvink, 2013, p. 443)

The overarching theme of the collective action in question is one of "antisystemic consciousness" (Fotopoulos, 2010) and the belief in, one way or another, that "another world is possible" (Moulaert, Martinelli, Swyngedouw, & Gonzalez, 2005, p. 1976). These collective actions are distinctly political in nature and therefore depend on a certain set of values that embrace a new logic outside of a strictly proprietary, free-market monetary-based system of capitalist value creation. The collective action under consideration here is an emerging form of networked social organization that has been observed to reverse extreme isolation and build community while creating value in more creative and efficient means than free-market capitalism.

These collective actions embed social organizing principles that defy the logic of neoliberalism's insistence on economic growth at all costs, markets as infallible, centralization as inherent and privatization as necessary (Longhurst, et al., 2016). They leverage the natural desire for meaning, trust and social belonging (Clippinger & Bollier, 2006). They are built on our inherent creativity and urge to collaborate, which flows through networks of connected minds as captured by Eban Moglen (1999). These collective actions are strengthened by a confluence of new sciences ranging from evolutionary biology, complexity theory, behavioral economics and others (Clippinger & Bollier, 2006) with empirical data showing how humanity is using the wrong operating system for value

creation (Barnes, 2006). The longer we deny the basic facts of our evolutionary history, our social and collaborative foundation, the longer we will perpetuate a system that is driving life on earth to the edge. If we are anything, we are social creatures (Clippinger & Bollier, 2006, p. 271) with a deep, ancient need for meaningful non-coercive connection, embedded in communities (Cottam, 2018) which build together the notion of society. These collective actions create communities of increased autonomy, collaboration, lightness, trust and empathy, not the growing "communities of fear and hate," that are retrogressive acts of tribalism (Manzini, 2018).

That's right—fueled by anger and fear, we are simultaneously witnessing a growing global populace embracing a return to "magical thinking" that denies objective reality and science that is ripe for demagoguery (Hedges, 2018). This frustration in society grows out of a fundamental miscalculation of the basic needs of the human. Whether or not this miscalculation was intentional, it is a miscalculation that will be corrected of our own or the planet's doing, one way or another.

At the center of this miscalculation is the economic model of capitalism and the political model of neoliberalism that extend far beyond to near-universal moral code with the foundational beliefs that A) the human species, or Homo Economicus, are simply competitive, rational actors seeking self-interest, rather than largely collaborative and empathic. In fact, we are far more dynamic, even contradictory, beings than our current economic-driven behavior models allow. That B) "free markets" for people to leverage their capital to create more capital purely for the sake of profit are not just necessary but the only viable means for value creation, individual freedom and "progress" for society and C) that government must not have a role in interfering with markets, that people must be left to their own devices to interact solely through markets and exchange of commodities and services through monetary transaction creates freedom in its purest form. The irony is that "free" markets are government-enforced institutional arrangements that turn all forms of value into price signals (Polanyi, 1957, p. 45) (Benkler, 2003) – hardly the pinnacle of self-determination, freedom and at best a fundamentally flawed accounting system for value. It should be noted here that neoliberalism is not possible as an ideology without capitalism and so inciting neoliberalism implicates them both.

The issue is not necessarily that markets or capitalism are entirely bad, although wage-labor in a capitalist system has been likened to slavery (Graeber, 2011), or that Homo Economicus is completely wrong. Rather, it is the pervasive and unbounded nature of these ideas and the imbalance that creates for other forms of value among people, other species and the planet. The prominence of capitalism "means no less than the running of society as an adjunct to the market." (Polanyi, 1957, p. 60) rather than the economy as a subordinate to society at large. Similarly, neoliberalism today represents more a truth regime than political ideology, which reflects a new conception of reality itself (Oksala, 2013, p. 61). This truth regime ensures people work to maintain the system voluntarily as a matter of rationality. This neoliberal truth regime, which demands that the economy is naturally self-governing and separate from politics, is not considered morally debatable. In essence, a ubiquitous narrative of neoliberalism has colonized the globe (Manzini, 2018, p. 162) and has been engendered to the masses to ensure the inheritance and perpetuation of an ideology which each individual helps to upkeep, even at their own expense.

The socialization process in this truth regime then all but guarantees that capitalism and neoliberalism is passed on from one generation to the next. A questioning of this logic of capital and neoliberalism

is both foreign and dangerous to those socialized within this regime. The logic of markets has effectively infiltrated all human activity at the expense of any other form of social or environmental relation.

An intensification of this miscalculation occurred post-1970's with a 'neoliberal re-engineering' (Orsi, 2009, p. 36) process. Alongside a geopolitical view of a world of scarce resources in the United States (Bardi, Falsini, & Perissi, 2019), the turn to neoliberalism happened in the backdrop of a process of increasing unemployment and inflation seemingly linked to Keynesian economics in the 1970's (Harvey, 2005). Further, the welfare state was seen to be making society less innovative and less competitive as it was believed generous social policy made citizens less inclined to maximize their efforts toward capital-creation. In the United States especially, calls for more central planning caused fear among elites that a growing populace frustration would lead to more socialist tendencies of redistribution after much of the wealth of the elite had plummeted in value. As Harvey (2005, p. 15) states "the upper classes had to move decisively if they were to protect themselves from political and economic annihilation." Further, Harvey (2005, p. 19) goes on to say, "the evidence strongly suggests that the neoliberal turn is in some way and to some degree associated with the restoration or reconstruction of the power of economic elites."

With the withering of welfare-oriented governance due to austerity measures linked to neoliberalism, whether you are rich or poor increasingly dictates access to opportunities that shape the whole of your life. So, free-markets and endless economic growth have not led to some ideal state of freedom but instead dramatic inequality and concentration of wealth which can be seen as inherent to the system (Orsi, 2009, pp. 33-34). This inequality has a broad range of negative mental and physical effects on people through the increase of stress (Prickett & Wilkinson, 2010). Further, neoliberalism has been seen as a driving force of inequality, polarization and lack of democratic representation for the masses (Orsi, 2009, p. 37).

Congruently, the "ethic of individual self-fulfillment and achievement is the most powerful current in modern society," in large part due to a neoliberal ideology which "enforces atomization with all its political will" (Beck & Beck-Gernsheim, 2002, pp. 22, 24). The individualization inherent to capitalism and neoliberalism, which extols winner-takes-all competition as necessary, breaks the bonds of a social species and leads to anti-social pathologies of self and collective immolation. In fact, the development of morality and ethics emerge through social interaction, a process which is threatened through lack of community and orientation toward the other (Bollier & Helfrich, 2015).

Therefore, inequality, a mainstay of capitalism, and its partnership with individualism produce a class of rich without any duty or social obligation to enrich the lives of the poor, effectively oppressing the lower social classes even in the absence of direct coercion (Orsi, 2009, pp. 44-45). Even more, in the United States, the heightened individualism associated with modernity and rapid economic change of the labor market brought on by the neoliberal globalization project has since the 1970's lead to an increase in morbidity related to 'deaths of despair' among white men (Case & Deaton, 2017, p. 430). Taken together, an anti-social tendency can be seen at the highest and lowest classes of society. Let us remember again for a moment that we are quite literally a social species.

What this grand miscalculation of social dynamics failed to realize was that social cohesion is the glue holding the intentional organization of people in society together and that neoliberal and

radical capitalist dogma dissolves that glue. Unfortunately, this is exposing symptoms of a deep pathology in society – a pathology which will only be compounded by the further destruction of the environment, mass migration and the growing pressure of global warming which can be seen as a harbinger for democracy and a global society. Uncertainty and perceived threats have historically led to violence and a destruction of human and natural rights (Clippinger & Bollier, 2006, p. 279). As we continue on our current path, resilience of the basic systems for survival will become ever more brittle, with social collapse more probable. The rise of retrogressive populism and the ascendency of authoritarian demagogues reveals capitalism and neoliberalism as a snake eating its own tale, with a logic that can only be maintained through growing force and disinformation henceforth.

As of yet, little has been said on the ecological ramifications of capitalism and neoliberalism since the health of the environment is dependent on how humanity organizes itself, as I have noted earlier. This is why the focus is far more on the social and structural dimensions of capitalism and neoliberalism. However, I will make a quick note that capitalism can be directly related to environmental integrity. As a regime of endless accumulation and endless geographical appropriation, capitalism inevitably results in a diminishing ecological surplus. Importantly, the limits of capital accumulation cannot be extricated from the limits of nature (Moore, 2015), which obviously has grave implications for the long term resilience of the global social, economic and political order if pushed too far beyond it's boundaries.

So, for a new paradigm of societal organization to gain foothold, the old paradigm of neoliberalism and capitalism must have thoroughly proven itself incapable of addressing social issues (Lévesque, 2013). Whether it is an economic crisis or any other global crisis, there will come a time, likely sooner rather than later, when the current neoliberal truth regime is particularly weak, further proving the inability to meet social needs and will therefore be ripe for change. This is why the emergence of a new social paradigm is both so critical and so possible at the current moment.

Therefore, to address Problem Framing 1, the overt goal of this research is to understand how to enhance the governance capacity of sustainably-minded collective actions so as to enable its growth in competition with organizing principles of capitalism and neoliberalism. In a closely related way, as Moulaert et al. put it, the aim is to:

"develop a capacity to recognise and promote socially innovative area development and to understand the extent to which governance initiatives…are able to grow and expand." (Moulaert, Martinelli, Swyngedouw, & Gonzalez, 2005, p. 1984).

In an effort to be excessively clear with the discussion so far, the graphic below works as a general logical "equation" that shows the problem framings as they have now been put into context.

Problem Framing 1= Equality + Ecological Sustainability

Problem Framing 2 + 3 = Rapid + Radical

So, PF1+PF2+PF3 = (Equality + Ecological) + (Rapid + Radical)

Situating the problem framing in relation to the contextual development:

(Equality + Ecological) + (Rapid + Radical) = Collective action – (Capitalism + Neoliberalism)

Using this crude abstraction as a point of reference, the question then becomes: what kind of collective action is necessary? Novel forms of collective action have driven research of Social Innovation, the Commons, and Peer Production, each with dedicated academic journals like Journal of Peer Production, International Journal of Social Entrepreneurship and Innovation and International Journal of the Commons. These three concepts are among the most prominent forms of social organization at odds with the predominant social order and have vast potential for social change.

With enough organizing capacity, these forms of collective action by collaborating citizens in networks that may include public and private actors, can force institutional change (Miquel, Cabeza, & Anglada, 2013, p. 157) toward a paradigm wholly more sustainable and a method of value creation that affirms life and a habitable planet. Further, the promise of novel relationships of coordination within networked governance between the public sector, private sector and civil society (Lévesque, 2003) has revolutionary potential comparable to the rise neo-liberalism (Rhodes & Wanna, 2007, p. 417) Narratives related to the commons, peer production and social innovation emerging in the midst of the current economic-political regime seek to provide an alternative path for society with a new set of values and social relations based on distributed networks of collaboration, self-organization, autonomy, transparency and democratization with inclusive participation.

LITERATURE REVIEW

THE COMMONS

The commons has a deep and well-established history of academic inquiry into the use of common-pool resources. Common-pool resources, as defined by Nobel prize winner and leading commons researcher Elinor Ostrom, are valued human-made or natural resource in which an individual's use diminishes the availability of another individual's use, meaning that there is 'subtractability'. Further, common-pool resources are ones that are costly or difficult to exclude users from (Dietz, Dolsak, Ostrom, & Stern, 2002, p. 18). Commons theory of voluntary action (CTVA) is another strain of commons research which also traditionally discusses common-pool resources and refutes Garret Hardin's government/private sector dichotomy but from less rationalist, systematic, and economic perspective and relates to "collective voluntary action in associations and assemblies" primarily (Lohmann, 2016, p. 28S). Regardless, research of the commons is looking into understanding the conditions in which common-pool resources can be managed sustainably among many actors as well as finding mechanisms that encourage stakeholders of a resource to act "in the interest of the collective good rather than with narrow self-interest" (Dietz, Dolsak, Ostrom, & Stern, 2002, p. 4) with a heavy emphasis on self-governance (Lohmann, 2016, p. 34S). A key feature of common-pool resources is the scale of the resource in questions. Common-pool resources could be as small as a lake with several cottages on it or as large as the Pacific Ocean. Although one would naturally assume these cannot be compared, as Ostrom (1990) describes, there are valuable comparisons between local and global common-pool resources and just because there are more users or stakeholders involved, this "does not necessarily impede cooperation" (Dietz et al., pp 23).

The commons, much like the market (to which the commons is not a part of) is a set institutions for the allotment of resources, mainly through the allotment of property rights, which under the right conditions, can be more sustainable, efficient and democratic than market-based resource allocation (Benkler, 2003). As noted, common-pool resources are the focus of commons research traditionally, but as critics of Ostrom's original characterization of the commons have pointed out, the resource itself does not determine the commons (Euler, 2016). There must of course be social institutions, or "the rules that people develop to specify the "do's and don'ts" (Dietz, Dolsak, Ostrom, & Stern, 2002, p. 21), in relation to the resource. As Elinor Ostrom describes, institutions exist among "all forms of repetitive structured interactions including those within families, neighborhoods, markets, firms," etc. (Ostrom, 2005, p. 3). A commonly-cited example of an institutional arrangement to govern common-pool resources is that of a "common property" regime (Dietz, Dolsak, Ostrom, & Stern, 2002, p. 17), which manages the resource through some kind of shared ownership. This implies that, within the commons, the nature of the resource (i.e. scale, abundance) is entangled with the "commoners" seeking to use and manage the resources, as well as governance mechanisms established by the commoners to own, manage, use, monitor and evaluate the resource.

Commons research has broad societal implications due to its basic thesis that people are not necessarily motivated by narrow self-interest, a hallmark of contemporary economic theory and capitalism. Rather, commons research affirms that localized modes of self-governance (Clippinger & Bollier, 2006) and voluntary action of self-organizing people and organizations can and have sustainably managed common-pool resources for centuries (Bollier & Helfrich, Patterns of Commoning, 2015, p. 2). Further, commons research into collaboration beyond the narrow self-interest has shown over time that "resource users do not always choose to defect rather than cooperate" (Dietz, Dolsak, Ostrom, & Stern, 2002, p. 15) and that rich networks of novel collaboration can emerge that leads to the sustainability of the resources.

Therefore, given economic theory's influence on governance, commons research has broad implications for governmental policy, as well. However, commons research did not start with that central thesis but instead a rather crude interpretation of society and resource management into a simple division of public and private goods. One of Vincent and Elinor Ostrom's most notable accomplishments is the division of goods into four categories based on the relative ease of exclusion and subtractability (meaning one person's use diminishes other's use) which identified public goods, common-pool resources, club goods and private goods (Lohmann, 2016, p. 32S). A Public Good resource is one that many have access to and does not diminish due to one individual's use. An example of a public good would be something like knowledge or the internet. Use of knowledge by one person does not make that knowledge unavailable to another. A common issue that arises among common-pool resources and public goods is the issue of a "free-rider". This term illustrates the potential issue that arises when an individual can have access to and use a common-pool resource or public good without contributing to the production or maintenance of the good or resource (Dietz, Dolsak, Ostrom, & Stern, 2002). The notion of free-riding has become a dominant argument in response to the commons and management of common-pool resources, however, research has shown what Runge (1984) describes as how for users of common-pool that one cannot assume that individuals have a primary motivation of free riding, especially in commons with efficient monitoring, conflict resolution mechanisms and graduated sanctions (Ostrom, 1990) (Cox, Arnold, & Villamayor Toma, 2010).

These categorizations by the Ostroms' were in opposition to the prior argument in Garret Hardin's seminal text "Tragedy of the Commons" (1968) in which he argued that individuals with 'open access' to a common-pool resource, meaning there are no restrictions upon its use or extraction rates, would seek self-interest over collective interest and would inexorably destroy the resource (Hardin, 1968). The reference to open access in the case of Hardin reveals a general belief among policy experts and academics which misinterprets the self-governance by local, non-governmental or non-market actors, as not having a set of institutions in place for resource management at all. Hardin's reasoning was that if one actor restrains their extraction of a particular resource based on notions of the collective good or the sustainability of the resource, whereas others do not out of their own self-interest, the resource will inevitably be destroyed by users and while some have reaped the short-term benefits of extraction at unsustainable rates, the cautious actor looking to restrain his/her own use has lost short term and long-term benefits related to that resource. Clearly evident here is the economic rationalist perspective. It would make sense in this scenario then that actors are incentivized to maximize one's own use as the resource will be destroyed anyway.

This logic reflects a dominant thinking in economics known as rational actor model (Dietz, Dolsak, Ostrom, & Stern, 2002, p. 4) (Euler, 2016, p. 94), otherwise named rational maximization, or rational choice theory which represent a model for the essential characteristics of human behavior, motivation and choice (Jones, 2003). The rational actor model has faced opposition and certainly does not account for all of human behavior (Euler, 2016), (Poteete, 2010, p. 177-178) as the theory of bounded rationalism helps to disprove. The rational actor model, a pillar of capitalist economic thought, essentially assumes that people are less inclined to cooperate than to look into their narrow self-interest whatever the activity that actors are engaged in.

Today, the logic of the rational actor model has extended so far as to direct humanity toward the mutual destruction of life on earth as the capitalists assume even now that no one will do their part to tackle issues of Climate Change and, within the logic of the model, figure they might as well plunder the earth while they still can. Hardin's original analysis to avoid the tragedy of the commons, meaning the depletion of the common-pool resource, was through "Leviathan" governments nationalizing the resource. Nationalization of common-pool resources as the necessary and successful alternative to enclosure has been debunked and, in many cases, made "things worse for the resource as well as for the users." (Dietz, Dolsak, Ostrom, & Stern, 2002, p. 13). This transfer of property rights from local communities to federal agencies highlights the importance of ownership rights in the debate of the commons which "affect the distribution of income, wealth, and other resources that are important aspects of the creation and survival of institutional arrangements" (Dietz, Dolsak, Ostrom, & Stern, 2002, p. 15). Further, transfers of ownership from local communities to the federal level, with the backing of Hardin's theory of the tragedy of the commons, often led to the destruction of complex local institutions built to sustain the resource in question and replaced with poor federal oversight without any local buy-in of the indigenous (Dietz, Dolsak, Ostrom, & Stern, 2002, p. 11).

In this sense, heavy-handed action of the wrong scale can be counter-productive and assert dominance where it is not necessary, nor is it desired by locals who live face to face with that resource. A thorough evaluation of the management regime/context in which the resource exist is therefore necessary before altering institutions (Dietz, Dolsak, Ostrom, & Stern, 2002, p. 12). Other than nationalization, Hardin proposed as the only alternative that the resource must be allotted in strict individual property institutions through the process of enclosure, a process dubbed

"a revolution of the rich against the poor" (Polanyi, 1957, p. 37). Hardin did not advocate for privatization of common-pool resources in his original assessment on the tragedy of the commons, however, private property is perhaps the dominant mode of resource allocation worldwide today. In capitalist regimes, markets are assumed to be more efficient than governments and so often the solution is seen to be privatizing public resources (Clippinger & Bollier, 2006).

As Benkler (2003) states, the central difference between commons and markets is in the definition of property rights with commons-based schemes ranging from open to limited-access (anyone can use vs select group can use) and regulated to open access commons (use is regulated vs use is without restriction). Regardless the particular scheme, a commons ensures that no single person has sole ownership of the a resource. Ownership models can lead to vastly different system behavior and dynamics. As Acheson and Knight, 2000; Knight, 1992 show, ownership is so key that often the impetus for changing rules governing common-pool resources are "fights over the distribution of resources" (as cited by Dietz et al., pp 21). Although private property as a resource management institution is widely used in the western world, Berkes (1986, 1989), Blomquist, (1992) Ostrom (1990), and Tang (1992) illustrate how "local groups using a common property regime could manage their resources quite well" (as cited by Dietz et al., pp. 16). This alludes to the questions of whether or not local governance capacity could or should be strengthened and empowered through particular common-pool resource institutions which flies in the face of Hardin's ideas of nationalization and privitization.

A central "product" of commons research has been the development of Polycentric governance which emphasizes the empowerment of local governance capacity and separate centers of decision-making. Polycentric governance refers to the formation of larg networks of interaction, while still maintaining nested, self-governed and autonomous communities within, essentially creating multitudes of distributed nodes of power. The autonomy allowed to lower-level or local nodes who self-govern corresponds to the notion of allowing for governance that is as proximate to the activities or resources being governed as possible.

With the advent of the internet and a digitally networked environment, commons research is seen to be split between "old commons" and "new commons," essentially moving from a focus on fisheries to forums. What binds the old and new, physical and digital commons is the fact that all commons are based on the active participation of people in producing and sharing knowledge to meet their own needs (Bollier & Helfrich, Patterns of Commoning, 2015, pp. 7,11). A unique feature of new, digitally-based commons like those created through peer pruduction, as will be discussed soon, is their distinctly conscious constuction of a commons by freely associating actors (Lohmann, 2016, p. 36S).

Commons themselves go back centuries as a social organization arrangement. The commons exists outside of both of these regimes and outside of main-stream economic theory, instead as an alternative vision of how society could be organized. Based on the private / public dichotomy that the commons helps to dispute, the implications of commons research is highly relevant to theories of governance, ownership and economics. Commons represent a different model for innovation built on abundance rather than the scarcity-driven competitiveness of markets and enterprise, meaning commons open access to non-market actors to create culture, technology or general value rather than solely limiting this capacity to enterprise who maintain their own proprietary rights (Benkler, 2003).

PEER PRODUCTION

Michel Bauwens, founder of the P2P Foundation, argues a post-capitalist and post-democratic society is possible through the enabling powers of peer-to-peer social processes which include peer production, peer governance and peer property. Peer-to-peer is post capitalist in that it does not rely on market-based mechanisms for motivation and peer producers do not work out of financial interest but rather in "non-reciprocal" exchange. Bauwens means post democratic in that peer production is not representative the way democracy is. Each peer producer has a voice rather than a group of people electing a representative of the collective voice.

Whether peer production, governance or property is in question, the processes that motivates them all are bottom-up among a distributed network of agents cooperating without external coercion. Not mentioned, but still essential, is that for peer production to occur, one first needs individuals to self-organize to some degree toward the production of some "common resource." How this happens is not discussed by Bauwens, but seems a crucial part of the process. Bauwen does allude to a naturally emergent property of distribute networks to produce peer-to-peer interaction, "where agents are free to undertake actions and relationships" with non-coercive governance modes "emerging form the bottom-up" (Bauwens, 2007, p. 32). Looking further into the origins of the emergent property of distributed networks, one would infer that peer processes are initiated by actors through some form of understood similarity in motivation or values or at least in the hopes of finding others who share the same interest. This is in line with the emergence of grassroots movements, social innovation and the commons. Peer production is a function of peer governance models rather than market or managerial governance.

The backdrop that Yochai Benkler uses for situating new forms of non-market social production is that of the "networked environment" or "networked information economy" developed since the advent of the internet and "ubiquitous computer communication networks" (Benkler, 2006, p. 68). With such a foundation, peer production then has a distinctly digital quality. This networked environment has opened up new possibilities for collective action and production among non-market actors that is decentralized, collaborative, and nonproprietary. (Benkler, 2006, p. 60). Benkler describes the initiation of peer production as requiring some form of "utterance" which must then undergo a process of relevance/credibility mapping to be meaningful others. Bauwens would refer to the relevance mapping as the governance that is then necessary to refine, organize and orient toward a goal. Lastly, the utterance, once deemed relevant and credible needs some means of distribution (Benkler, 2006, p. 68), which it seems Bauwens (2007, p. 26) would refer to as the property created through peer production to maintain specific rights to the common effort. In the digital sphere, this is often through Creative Commons or GPL licenses which ensure that the production cannot become proprietary, at least only in so far as the creators have outlined. In this sense, the outcome of peer production is the creation of a commons, and producers could be seen as "commoning," which "implies the aspects of being peers and inherent voluntariness" (Euler, 2016, p. 98). Through production, governance and distribution, a commons can be created and maintained. However, Bauwens differentiates between material and immaterial peer processes. The immaterial sphere consists of "digitally-enabled cooperation" (Bauwens, 2007, p. 26) and with near zero marginal costs for reproduction of digitally-based goods, peer processes have a thriving ecosystem of collaboration on the web. Major sources of peer production on the digital networked environment are in relation to open-source software, information and knowledge, sharing of

computational processing power and storage, and communication platforms (Benkler, 2006, pp. 59-90). Commons-based digital peer production, at least in German commons discourse, must find ways to merge with the offline and tangible manifestation of the commons to form the "foundation of a free society" (Euler, 2016, p. 95).

Goods in the immaterial sphere are classified as non-rival resources meaning that the use of that resource does not diminish it's use for others. Rival resources are those that are finite and make up a majority of the material sphere of peer production. Rival and non-rival goods are linguistically similar to the language of Common-pool resources and public goods and thus show epistemological overlaps. This realization, along with the understanding that peer-production is essentially "commoning" shows that seeking to understand the commons or peer-to-peer production as separate entities is inefficient and unwarranted. So, although I am seeking to describe the particularities of each area of academic research, these borders shouldn't be so prominent so as to miss the overarching patterns, which I seek to get at in the next chapter. Where common-pool resources already exist in the commons discussion, and people do commoning to manage the commons, Peer-to-Peer processes likely produce a new resource that was not available previously, or at least combine a set of available resource to create new value. If commons are about sustaining resources, peer production, as the name states, is about the production of resources. This new creation, and the collaboration connected to it, would likely be called a commons.

Peer production, both material and immaterial, is the confluence of three separate movements (Bauwens, 2007, p. 34). The Open source movement, participatory movement and the commons movement. These three movements, the praxis they advocate and the properties of distributed networks, in which individuals are free to self-organize with near-complete autonomy, has led to peer-to-peer social processes. Bauwens believes that peer production could pervade all of society in varying ways, similar to how capitalism has infiltrated society, but does not see peer production as the only form of social organization in the future. Democracy and the market will still play a role, albeit, shaped and informed by the a new world order of peer production. The inevitable reorganization of society due to peer production is likened to the shift of social roles between the owners of means of production and producers from the "slave-based Roman Empire" to serfdom (p.31).

In the same sense, the owners of the means of immaterial production no longer produce their own proprietary goods enclosed around intellectual property rights, but rather facilitate peer production "through proprietary platforms" (p. 31). And the serfs in the historical analogy, referred to by Bauwens as "knowledge workers" or content producers as referred by myself, now have access to the means of production distributed essentially equally among users in a "socialized means of production," (p. 31) so long as computers and internet are ubiquitous. One can understand now how peer production has been likened to Marx's conception of advanced communism (Rigi, 2013), although Bauwens does not. Instead, a "partner-state approach" is advocated in which "the state enables and empowers user communities to create value themselves." (Bauwens, 2007, p. 32) Again, there is a striking overlap between peer-to-peer and that of the commons and participatory literature with their respective calls for devolution and community-driven development (Friis-Hansen, 2009), and polycentric governance (Ostrom, 2010). Bauwens goes on to describe the freedom of choice between the private sector, the state (or Leviathan as referred in commons

literature) and "autonomous civil society projects," (Bauwens, 2007, p.33) essentially meaning the commons. Lastly, Bauwens underlines heavily that our current "political economy," meaning a universally dominant market-based society, relies on a "fundamental mistake." (Bauwens, 2007, p. 30).

That mistake is the global adoption of a mode of economic production, capitalism and neoliberalism, "based on infinite growth" with the notion of "pseudo-abundance" (Bauwens, 2007, p. 35), as material resources are finite. That fundamental mistake is then reversed in the immaterial sphere but equally as incorrect, as capital requires the enclosure of non-rivalrous knowledge and information to create pseudo-scarcity to make a profit (Bauwens, 2007, p. 35). In relation to sustainability and meeting the challenges facing the planet, complex collaboration of the greatest magnitude will be necessary for success. Where capitalism builds walls and stifles innovation, peer-to-peer social processes step around those walls to connect and collaborate on a whole new scale.

SOCIAL INNOVATION

Although Social Innovation has become a buzzword (Moulaert, 2013, p. 13) over the last twenty years, the meaning is often unclear (Unceta, Castro-Spila, & Fronti, 2016) and in reality transcends any one academic discipline (Ziegler, 2017). Contributions include but are not limited to community psychology, creativity research, sustainability transitions, local development (van der Have & Rubalcaba, 2016) with a heavy influence from management science and business administration (Moulaert, Martinelli, Swyngedouw, & Gonzalez, 2005, p. 1973). Ziegler (2017) discusses the essentially contestable nature of Social Innovation. Concepts like sustainability and sustainable development are essentially contested and therefore are inherently and necessarily deliberative by nature. Ziegler continues that Social innovation is similar in this way and the pluralist meanings of the concept are useful for deliberation and collaboration.

In similarity with the other streams of literature under review, it is common that the concepts and their articulation defy the boundaries of disciplines, providing many academics with ample room for new theoretical frameworks for analysis. The addition of Social to Innovation implies that there is something that innovation is currently not doing adequately and that a more social orientation can change this. Innovation, as a hallmark of capitalism and competition, has been a driver and perpetuator of much of the environmental damage and inequality we see today (Ziegler, 2017, p. 390) Social innovation then is a new innovation agenda that goes beyond the end result produced, in light of the negative externalities, and is aware that to change the product, the processes and values beforehand must change too (Ziegler, 2017, p. 390). Innovation, without the adjective of "social," has been broadly described as undemocratic innovation (Ziegler, 2017) (Smith & Stirling, 2018).

With the addition of "social" to innovation, a more democratic process is produced that seeks to counter the negative effects of the prior paradigm of innovation. This democratic process is made possible through the involvement of citizens in the innovation process through some kind of co-production/co-creation. The roles of citizens can be as co-implementers, co-designers or as initiators (Voorberg, Bekkers, & Tummers, 2015, p. 1339). The latter implies social innovation processes are initiated by citizens and private/public actors may not necessarily be involved in the process at all. The former two typically imply that the public sector is the initiator of the social innovation journey,

with varying degrees of influence allowed by citizens. In comparison to peer production and the commons, social innovations aligns most with the others in the realm of citizens as initiators and closely resembles the idea of the "partner state" with the government as facilitators of citizen-led initiatives (Orsi, 2009, p. 43). So, to tie all three together, it would mean focus on citizens and the third-sector as the drivers and owners of the process. Further, the prevalence of collaboration at the grassroots level and within civil society has been noted by many (Moulaert, Martinelli, Swyngedouw, & Gonzalez, 2005) (Manzini, Autonomy, collaboration and light communities. Lessons learnt from social innovation., 2018) (Meroni, 2007).

Social Innovations can be both market and non-market oriented innovations (Ziegler, 2017, p. 389) and can exist in civil society, public sector or private sector. (Miquel, Cabeza, & Anglada, 2013, p. 161) (Unger, 2015). In fact, there is often a network-based approach, relying on the collaboration of all three sectors as scale of the innovations increases, blurring the boundaries of responsibility and creating multi-level governance (Miquel, Cabeza, & Anglada, 2013, p. 155). However, grassroots element seems essential to the process as the inclusion and participation of "users" is a central piece of the process (Fraisse, 2013, p. 361). Further, with the motive on creating public value (Lévesque, 2013, p. 32) and less on profit maximization, the non-profit and civil society sector is of particular interest.

What seems to be a difference between social innovation and the commons is that it does not necessarily prohibit the role of the private sector, nor is the outcome a commons like commons-based peer production. However, often the case is that social innovation is in response to perceived private or government failures (Voorberg, Bekkers, & Tummers, 2015, p. 1349). From some sort of failure there must then be a problematized state of unmet social need by various actors (Unceta, Castro-Spila, & Fronti, Social Innovation Indicators, 2016, p. 193). Developing a problematized state among various actors is a challenge in and of itself in that social problems are often intractably intertwined (Unceta, Castro-Spila, & Fronti, 2017, p. 409). Regardless, from this problem state of unmet social need arises a valuable new social form, which a "re-discovery of collaboration" (Manzini, 2018, p. 163) among solution-oriented actors seek to solve. Social innovations comprise of products, processes or methods which are created through mobilization of resources and collaboration around particular social issues.

Social Innovation can therefore be seen as twofold (Ziegler, 2017). It is a reconfiguring of social relations within communities and satisfaction of unmet human (and perhaps non-human) needs (Moulaert, Martinelli, Swyngedouw, & Gonzalez, 2005). Definitions have come to incorporate both. While this formulation is quite straight forward, the question of how social relations are reconfigured and how unmet needs are satisfied opens up layers of complexity. At its core, social innovation requires a capacity to produce knowledge and articulate that knowledge into solutions, requiring a capacity for governing the process as a whole (Unceta, Castro-Spila, & Fronti, 2017, p. 407). As social innovations and the communities attached can essentially self-organize at the grassroots level spontaneously without prior history of collaboration and without institutional frameworks, the undertaking of governance is no easy task. However, a common characteristic of social innovation in relation to the reconfiguring of social relations and governance is the emphasis on changing power dynamics to become more inclusive. The new processes that lead to heightened inclusivity are essentially governance mechanisms. Through this it becomes clear that an actor or actors must

use a framework of governance to produce a social innovation, while the field of governance may in fact be that social innovation (Miquel, Cabeza, & Anglada, 2013, p. 156).

In this sense, governance can be both the actions toward and object of Social Innovation. This governance emphasizes a high degree of decentralization and openness of decision-making of internal and external governance (Miquel, Cabeza, & Anglada, Theorizing multi-level governance in social innovation dynamics, 2013) and has been broken down into three categories of institutional, economic and social governance (Unceta, Castro-Spila, & Fronti, 2017). To enable more social innovation, while avoiding the toxicity possible through tribalism, there is a need to put quality conversation into quality action. It stands to reason, then, that governance could be a crucial leverage point for social innovation, streamlining the process of potential (deliberative) capacity to realized (decided) capacity. Overall, the point of governance in social innovation is to open up social spaces for structured deliberation of autonomous actors toward agreed upon solutions (Unceta, Castro-Spila, & Fronti, 2017, p. 408).

In a study by Ziegler (2017) that researched the organizational capacity of various regional agents in the Spanish Basque region, it was noted that non-profit agents had a considerable gap between their potential and their realized capacity (Ziegler, 2017), although companies were still lagging. However, it seems the non-profit sector, which would certainly include social innovation, are not well organized to realize the fruits of their energetic labor. Further, Ziegler reveals that governance of social innovation, meaning participation of target population and inter-organizational relations, was the least developed competence. Lastly, the capacity for collaboration and cooperation was similarly low. (Ziegler, 2017, p. 200) Focusing on the collection of collaborators, a community, and the innerworkings of a particular network will not tell the complete story of a group's capacity to leverage knowledge and resources. The knowledge developed within a community is a function of the knowledge of the broader system. This implies that there is a possibility for better or worse knowledge systems as well, which lead to the more or less valuable knowledge production.

In relation to an organization's absorptive capacity, knowledge becomes useful the more actionable it becomes, the more it can be leveraged to innovate new solutions. The more developed the knowledge, the more it moves in the realm of intervention, which then perpetuates/evaluates it's use in the process of action. Therefore, social innovation is inherently about knowledge production. The epistemic regime provides particular social solution ecosystems, or "enabling ecosystems" (Manzini, Autonomy, collaboration and light communities. Lessons learnt from social innovation., 2018, p. 165), of partnerships and collaboration. The planned impact of social innovation then is not something that can adequately be addressed solely on an individual intervention or organization but must speak to the overarching process of knowledge production (Unceta, Castro-Spila, & Fronti, Social Innovation Indicators, 2016). Despite the centrality of governance in Social Innovation, there is very little research on the measurement of governance (Unceta, Castro-Spila, & Fronti, 2017, p. 416)

Social innovations are carried out by "creative communities" (Meroni, 2007) and evolve into "collaborative organizations" (Manzini, Autonomy, collaboration and light communities. Lessons learnt from social innovation., 2018, p. 163). Social Innovation creates new highly autonomous but not individualistic communities that achieve results they would not otherwise be able to, developing roles that allow for high degree of autonomy to choose how and when to collaborate.

This form of communally-based collaboration engenders trust and empathy as another product of the process (Manzini, Autonomy, collaboration and light communities. Lessons learnt from social innovation., 2018) (Miquel, Cabeza, & Anglada, Theorizing multi-level governance in social innovation dynamics, 2013). For Social Innovation to have impact and be meaningful/valuable, the collaborators, with their resources, must develop absorptive capacity. Absorptive capacity refers to the ability of collaborators, groups or organizations to leverage (through a process of identifying, assimilating, transforming and exploiting) their various resources, both external and internal, into productive outcomes that tackle social issues better than before (Unceta, Castro-Spila, & Fronti, Social Innovation Indicators, 2016). The logic is, the higher the capacity, the more valuable or successful the social innovations can be. Manzini (2018, p. 164) refers to this similarly as a group's ability to "transform conversations into actions capable of achieving shared results." This all implies that social innovations have a differing degree of success and many researchers seek to enable the growth of social innovation by understanding it's success metrics.

A question that remains on my mind is what happens before creative communities emerge? A space of opportunity must exist for social innovation to be born (Manzini, Autonomy, collaboration and light communities. Lessons learnt from social innovation., 2018) but what are the conditions that allow for disparate actors to create creative communities? And where does this happen? The question becomes, how to grow more space for opportunity and what opportunity is most necessary for the initiation of social innovation? The literature reflects an emphasis on the role of public organizations as the main actor responsible for actions to enhance social innovation (Voorberg, Bekkers, & Tummers, 2015, s. 1344), which does not seem to reflect the fact that social innovation among citizens in civil society can flourish with or without significant public support or that civil society has much capacity to organize and participate without the facilitation of government. This reflects a disconnect from the commons and peer production which illustrates just how effective citizens can be at organizing of their own discretion. Further, as stated, citizen as initiator of social innovation (rather than co-implementer or co-designer) means ownership of the social innovation is inherently within the hands of the civil society actors, and the added responsibility and interest that comes along with ownership could lead one to believe this could produce the best results.

In relation to Social Innovation, metrics for evaluation are being sought (EuropeanCommission, 2012) but are still not well developed (Unceta, Castro-Spila, & Fronti, Social Innovation Indicators, 2016, p. 195). From my analysis, there seems to be an absence of a systematic process for identifying the existence of social innovation through the value-based and political nature of its creation. Rather, there is a focus on the mode of operation that happens once social innovation has already been identified. In a sense, it is taken for granted how difficult it can be to start a community or project in the first place.

SYNTHESIS OF VALUES AND COMMON PROBLEMS

As stated in the methods section, I am attempting to build a coherent understanding of the essential characteristics of all three concepts to consolidate learnings but also inform the design process. In this section, I will describe the characteristics that I have found to be essential, if not in all concepts, at least symbiotic to all. They can be described as self-organization (self-associating, self-constituting) among members of the association and therefore autonomy to make decisions in a way that is characteristic of distributed networks. Similarly, a high degree of transparency and democratization throughout the network of actors with inclusive participation of members. Significantly, amidst the autonomy of individuals and distributed nature of power exists still a shared ownership and alliance/bond that forms a community of freely associating people.

Putting this all together, it can be said that the main focus of the synthesis, which I need to consider for the survey and the design intervention, is in relation to the governance, communication and decision-making. The literature review has helped to highlight these themes and the survey will be done to pinpoint specific ways of working and challenges associations face in regard to these themes in the effort to develop design interventions.

SYNTHESIS OF VALUES

DISTRIBUTED NETWORKS

Distributed networks among people have historically been hard to come by. One of the natural limitations of society is an increased difficulty with communication among many, versus few people, especially when power, control and decision-making ability is not concentrated among few. In fact, representative societies are the backbone of civilization. The degree of concentration, meaning the patterns of centralization, decentralization and distribution are apparent everywhere you look, from the concentration of wealth, decision-making power, and production in cities, to the concentration of veins in a leaf. The degree of representation varies, of course, with perverse and extreme power concentrated among the few, even in "democratic" societies, but regardless, all mass society is essential built around a degree of representation. As opposed to centralized networks (considered authoritarian regimes, dictatorial), or decentralized networks, distributed networks create an equal dispersal of power, control and ownership in activities, importantly in decision-making.

A distributed network creates decision-making authority at every node, in this case people, essentially equal to the next. As stated, this diffusion of power so equally has historically limited a mass society's ability to communicate efficiently and some would say effectively. It might take longer and perhaps ends up with worse results. Research on employee-owned enterprises, which more equitably share ownership, power and control over the business's operations, shows that better results come with this equitability (Erdal, 2011). However, digital technology changes the calculus. The technical ability is there but the social ability must be there, as well. The capabilities of the internet and perhaps now blockchain, enable distributed networks, and powerful, verifiable information that is being developed in the civic sphere with apps like Loomio, Kiala, Riot.fm and many others. The concept of distributed, decentralized or centralized networks means more connectivity, too. But connectivity is already something that current platforms do quite well. The difference in a distributed social network is the nature of connectivity which actually increases the potential for collaboration as it is more inclusive (therefore enlarging the population with access) and done

under terms generally more equitable to users. Interestingly, the circumstances of connectivity among users in a distributed network also actually physically alters the network.

Related to the conversation about commons, peer production and social innovation thus far, socialism and capitalism can both lead to a high degree of concentration. One the one hand it's a concentration in the hands of national governments. On the other hand, it's a concentration in the hands of multi-national corporations. As an add on, the ownership of multi-national corporations by national governments represents an attempt to surpass the limits of national identity by commandeering the international mechanisms of capitalism. Chinese state-owned enterprises' activities in American markets is thought by some to be an example of this.

At any rate, the commons and social innovation do not necessarily represent distributed systems, but at least rather decentralized systems. In the case of peer production, distributed networks are the outcome. Distributed networks, in this case, represent the most equitable endpoint in terms of power and decision-making and therefore the design will seek to leverage distributed networks while overcoming the limitations of real-world power dispersal. In the case of Social Innovation, new kinds of networks emerge that leverage various aspects of private, public (government) and "third sector" (the public). Most strikingly is how these network grants access to citizen participation. In the commons research, the concept prominently articulated by the Ostroms was Polycentricism, which represents networks of distributed power.

SCALE / CONTEXT

As stated in the distributed networks section, mass society has always been in conflict with scale and additionally with context. Scale has been described but again, communication becomes more and more challenging as the "chat room" of society grows. This is why certain techniques of governance have evolved to represent "lower" hierarchies of scale.

In the case of the commons, commons can be very small, like a community garden, or very large, like the atmosphere, or the Pacific Ocean. Managing on such a broad scale, from the smallest to the largest commons needs communication among various scales. One commons can require local but also regional and international governance which likely requires interorganizational communication. Working with this kind of scale requires a design that can find a way to transcend the normal limitation of scale. A digitally-based design in the form of a platform has a possibility to do that. For Social Innovation, again, there is an emphasis on public, private, third sector partnerships and these can often include various scales.

Context is just as important and obviously intertwined with the notion of scale. As scale grows, you are certain to run into contextual differences. In fact, the moment scale goes from one unit to another, you are looking at a different context in some way or another. In relation to the common's discussion, polycentricism as well as the general literature, advance the notion of local governance. This means that those who use a particular resource, who often have the most stake in and knowledge of the resource, should have the ultimate governability of the resource. As context changes can have such vastly wild outcomes on any given intervention, it is important to include the wisdom of the people in that context as much as possible. Social innovation, with its emphasis on participation is similar in the need for contextual knowledge.

As stated, a digital environment provides a useful solution when it comes to scale with peer production as an example. Within the digitally networked environment, in the case of software development especially, limits of scale and even context can be reduced as those working on a project could hypothetically include anyone with internet access and certain set of skills – therefore, melting away typical assumptions of human interaction.

SELF-ORGANIZATION

Self-organization is inherently about non-coercive, self-directed, and free association. The idea of self-organization is fundamental to the commons, peer production and social innovation. Unfortunately, Socio-technical and political structures often create circumstances where self-organization is difficult. One of the main critics of capitalism, especially by Marxists, is the lack of freedom wage-laborers have to self-organize in their work lives, instead forced into unsatisfying work to pay rent to the capitalists. This to Marxists is structural design meant to subjugate and exploit wage-laborer's, which essentially comprises a majority of the economy as centralized hierarchies are prevalent similar to representative governance discussed earlier. Self-organization means people coalesce around certain ideas of their own free will and create a phenomenon of a community. The exact reasons for doing so varies widely. Many sustainably-minded communities focused on social and lifestyle change, and the ones this thesis is mainly interested in, are self-organizing to build a more ecological and/or socially just ways of living.

AUTONOMY

Autonomy is similar in many ways to self-organization but as the term implies, it is about organizing. Self-organization refers to an active process, while autonomy refers to a status. By this I mean that autonomous people, free individuals, engage in self-organization. They are free individuals bound within a self-organizing or self-organized community. These autonomous people make up self-organized communities. Autonomy is contradictory to representational governance. Autonomy in this sense refers to hierarchy, which, in relation to our three streams of literature, is a reversal of a coercion-based system based on power imbalance, towards one based on non-coercive human action. In a distributed system, power and decision-making is spread to each node and therefore makes each node autonomous. They do not need others to represent their power and decision-making in a more centralized way.

However, similar to behavioral model of bounded rationalism which Elinor Ostrom subscribed to (Ostrom, 1998), "individuals" act within their own needs but are inherently social and connected to others of various communities. Autonomy refers to a person' individual choice, a recognition of that individual as situated within social networks that become functional units in their own right, and that individuals are free to leave those networks at their own will. For autonomy to be possible, other values like transparency and a distributed or at least decentralized structure need to be present and again the interconnectivity of these values comes into play.

TRANSPARENCY

A key to peer production and the commons is that information is not defined within private property. Information is freely flowing through the network. The advantages of this is efficiency, fairness, learning and innovation. Efficiency in that closed systems of privately-owned information must collect fees before information can be released. This represents a significant delay in the flow of information. A system in which information flows without blockages, temporary though they may be, represents a more efficient system. The advantage of fairness comes in that more people have access to the information. This creates a more democratic and equal system. Last, learning and innovation are advantages in that as information is more efficient, without roadblocks, and more equitably shared, knowledge can be produced in a more inclusive system, lending to adaptability, resilience and innovation that we couldn't have without the more inclusive system.

What is meant when people say "freedom of information" is a desire for transparent information flows. Transparency is about being able to share openly and freely. Sharing freely increases the value of the information, whereas in a capitalist sense, sharing freely is decreases the value of the information. However, capitalist platforms like youtube, facebook, and others, have found a way to leverage the free sharing of information but owning the platform for sharing. This, however, does not fit the notion of transparency as freely sharing the information collected on users would destroy their business model. Further, the fact that the business model of Facebook is understood in a limited way by most beyond the phrase "advertising," relays a lack of transparency in that people do not even know how they make their money. In my design outcome, transparency will be used in that all information that is collected by the platform is made readily available to the entire community through various key metrics. This data can be used openly by the community of users, or even outside academics for research purposes.

DEMOCRATIZATION WITH INCLUSIVE PARTICIPATION

As has been referred to tangentially already, distributed systems and decentralized systems are more democratic and inclusive systems. Just allowing access to a broader, more inclusive population however does not necessarily encompass democratization unless people actually participate in the system and participation has meaningful impact for those people. Obviously, a system that democratizes in a way that equates corporations and people, and therefore grants a corporation vastly more influence in the system than an individual person, does not fit into this idea of inclusive participation. Regardless, political processes are being opened up to reflect the capabilities and inputs of civil society actors (Miquel, Cabeza, & Anglada, 2013). An opening of decision-making processes and increased participation can lead to a sense of ownership by participants. This sense of ownership and responsibility that comes with it can lead to increased investment of time and effort in the services/innovation (Voorberg, Bekkers, & Tummers, 2015, p. 1343). Democratization with inclusive participation is a widely discussed topic today and can be summed up in the general terminology "participation." Radical or far-reaching changes, if they are to be intentional, guided transitions in society, require a focus on innovation processes. Strengthening the case for increased participation is the perspective that a more sophisticated innovation process is emerging with the co-production between expertise and "diverse publics in complex processes over extended periods of time" (Smith & Stirling, 2018, p. 90).

SOME COMMON CHALLENGES

Here I will give a very abridged account of common challenges that were deemed relevant to the concepts of the commons, peer production and social innovation. In relation to Social innovation, governance capacity was identified as being low (Unceta, Castro-Spila, & Fronti, 2016). Given the need for self-organization and values increased participation inherent to the commons and peer production, as well, it could be generalized that diverse actors, especially in civil society, have relatively low governance capacity. By this I mean that newly formed social entities are not just born with governance and institutional arrangements but must be created by participants and this process takes time.
Scale has also been acknowledged already as an inherent value to the three concepts. The problem of inter-scale collaboration and horizontal context differences is relevant to all three concepts. The struggle between local specificity and widely applicable interventions is a reoccurring. Although peer production is largely based in the immaterial sphere, there are considerable hurdles of how to translate p2p production into the physical sphere in a large-scale way (Siefkes, 2008). In the physical world, solutions to a problem may be out of the reach of the participants due to the scale of the issue. A damaged ecosystem which crosses the boundaries of national territory may be a scale insurmountable by local commons-based initiatives. I should highlight one last time how scale was identified as fundamental to the values of the three concepts as well an common challenge. Therefore, it seems that this value and problem could be a key leverage point for a design intervention. So, how could the considerable barriers of scale are broken down?

Any design intervention that attempts to change current practices a socio-technical system must be aware that far-reaching changes or even radical changes are undoubtedly difficult. Therefore, a design intervention must be appropriate enough for traction of the concept and to ensure a certain level of usability that can propel change. (Smith, Fressoli, & Thomas, 2013, p. 120). If the idea is "too radical" or "ahead of its time," it's likely it does not fall within a range of acceptance and ease of use. In a similar vein, if a design intervention is appropriate enough for a socio-technical regime, while trying to subvert it, it must also be conscious of corporate or state capture (Benkler, 2006) (Miquel, Cabeza, & Anglada, 2013), with either private enterprise coopting production of individuals or civil society organizations becoming service providers of the state, adopting the values and demands of the larger scale. The "mainstreaming" of grassroots activity can often lead to a weakened radical ethos (Moulaert, Martinelli, Swyngedouw, & Gonzalez, 2005).

Although I did not find this in the literature, I have been debating personally the connection between equitability and ecological considerations. What a world that is more economically equitable than today, with 26 people owning as much as the poorest 50% of people on the planet in 2018 (Oxfam GB, 2019), would mean ecologically speaking is not clear from the literature review. Does a more equitable world lead to a more ecologically sustainable world? Therefore, it should be noted that this thesis operates under an assumption that with a more inclusive society that is inherently less oppressive, more ecologically sustainable practices have a possibility for expression – whereas in the social order of today (with various contextual histories and a global capitalist hegemony), sustainable social practices meet heavy resistance from the status quo. I am aware it is possible that a more equitable world, which allows access to the levers of power and decision-making to a wider array of people, could be counterproductive to ecological sustainability. I do not have such a pessimistic view, though.

As discussed in the literature review, our understanding of the human being as homo economicus would lead one to assume people are inclined toward exploitation and overshoot of natural systems. The literature review shows that this is not the fact and that people are far more sensible, social and community-based than our traditional behavior models allow. Further, the ecological problems we face as people are on a global scale. This means that addressing those issues will require global change in social practices. Therefore, the ecological crisis is inherently about equity in that it must be address by a global movement of people. Even if ecological solutions come from the highest halls of government, people in their everyday lives must accept to a degree and follow the guidance of any environmental regulations. In such an interconnected world, legislation aimed at private industry will have economic and social impacts on people, as well. The ecological crisis is inextricably connected to the question of equity in my view because the ecological crises cannot be tackled in an unequal manner – we must all take part in the process.

SUMMATION

In brief, now that the concepts have been analyzed and a synthesis of them elaborated with a few challenges highlighted, this effort must continually ask what can design do enable this behavior for increasing sustainability in relation to "a more equitable and ecologically sustainable world" (problem framing 1) and to focus on more "radical" or "far-reaching" possibilities (problem framing 3). Certainly, the design intervention must incorporate the synthesis of characteristics and values while also addressing the highlighted issues.

The design process has begun in the initial words of this thesis but only one step remains before the documentation and explanation of a design intervention which represents the culmination of the process. This last step before designing the intervention is crucial to human-centered design thinking and seeks to understand potential users of the design outcome.

SURVEY OVERVIEW

As mentioned in the methods section, the survey will need to: 1. Identify potential users (in relation to the synthesis of the concepts of commons, social innovation and peer production) and 2. understand how those users do certain activities (in relation to the synthesis of the concepts). Again, the degree to which respondents associate with the synthesis of the concepts, the more valuable their feedback in terms of a design intervention that is targeting to enable the values of the concepts in the literature review. Once those groups have been identified, the survey will function to understand particular areas to leverage in a design. Further, the survey should bring to the surface various communication and organizational practices of associations in relation to values of the commons, peer production, and social innovation. Communication and organizational practices are quite abstract and therefore can be misunderstood or go unnoticed. This survey aims to help understand abstract working practices of those who, if any, are working in ways that align with the concepts of the commons, social innovation and peer production.

Through the literature review, it became clear that a prevalent cite of the key concepts in society was in the third sector or civil society, that is, outside of private / public sector (or at least in processes with increasing proportion of non-market and non-public actors). Problem framing 3 states that fundamental changes are necessary. A design intervention enhancing civil interests could lead to fundamental changes. This refers also to one of the key values in the synthesis of democratization with inclusive participation. Processes traditionally handled by active private / public sectors with passive civil society recipients are, as the literature review elaborates, being turned on their heads. With such an evident discourse on enhanced participation of civil society, it made sense that my user-centered survey would focus on the third sector. This could be likened to a new paradigm of collaboration in society but unfortunately the newness of the phenomenon presents a challenge to data collection, especially in the form of a survey.

The combination of a survey, which requires many sources of information, and an emerging phenomenon of inter-personal relations are contradictory in that the collection of those sources may have never been done in a systematized way that lends itself to survey-based information gathering. Still, though, this does not mean valuable information is impossible. To solve this contradiction, I looked to civil society, specifically, the legal entity of an association which has a history of systematized data collection in Finland. Associations in Finland are by defined the Finnish Patent and Registration office as:

> A non-profit association is an organisation, meant to be permanent, founded by several persons or several organisations having legal capacity, for the realisation of a common non-profit purpose. Non-profit associations within the meaning of the Associations Act differ from economic organisations in that they do not aim at gaining profit or economic benefit for the parties to them, and that their activities cannot be mainly economic. The focus of the activities has to be in non-profit work. Political parties,trade unions, athletic clubs, charitable organisations and hobby clubs are examples of non-profit associations within the meaning of the Associations Act. (Finnish Patent and Registration Office, 2014)

As the literature review revealed, the key concepts discussed had an underlying non-profit motivation. The commons was strictly seen as outside of the market economy and peer production involved people's collaboration based not on monetary but intrinsic incentives. Social innovation could of course involve profit-seeking, but it was very clear that social innovation does not start

with an effort to make money, rather to address social needs that are going unmet. Therefore, all three of these concepts align with the definition of associations in Finland as activities that are not mainly economic, without the aim at gaining profit. Another legal entity, cooperatives, also share similarities of values of democratic ownership that can be likened to the key concepts. However, cooperatives are business enterprises with economic interests (whereas associations are not economic organizations) and so on this ground I did not choose to focus on cooperatives. Since associations can have democratic ownership and are non-profit entities I felt associations were more appropriate. With that being said, I think cooperatives were also a very valuable choice for research in relation to the key concepts but for the sake of clarity and scope, I chose just the one. In a perfect world, it seems the ideal entity for this survey would be some kind of hybrid of a non-profit association and cooperative based on collaboration that creates commons-based value, i.e. non-market. In the case of housing cooperatives in Finland, if collaboration is done among members, the output is not based in the commons, but rather what is essentially private ownership of an apartment.

The drive for a survey of potential users of my design intervention, which led me to associations, presented another paradox in that Associations in Finland are actually quite regulated entities. An association has, by law, certain practices for how decision-making power is distributed that it must uphold. This means that identifying the concepts of the commons, peer-production, and social innovation, which I described as exhibiting self-organization, autonomy, transparency, and democratization, for instance, may not align with the legal requirements of Associations. However, the legal requirements of an association does not effect the quality, mode or prevalence of communication among members, which leaves room for the concepts and their characteristics to exist.

So, it seems I do not have an ideal type for the survey which is compounded by the fact that peer production, social innovation and the commons are often occurring below the radar of legally recognized entities. With that being said, though, associations in Finland do offer large registered databases and can still fit certain qualities of the key concepts.

As a formal part of the legal framework, information is available that will allow me to contact and conduct a broad survey. I was able to receive this information from Suomen Asiakastieto Oy, which is “one of the leading providers of data services” in Finland with a “comprehensive company information database” (Suomen Asiakastieto Oy, 2019). Asiakastieto was able to provide approximately 1,900 registered associations with emails. They have more associations within their database but do not have email information for this, so those could not be used for an online survey. This fact would be something to think about in relation to the generalizability of the findings of the survey, but since response rate was low, generalizability wasn’t possible anyway . Although I cannot foresee any specific issue, there could be a reason why these particular associations provided their email information when others did not, which could add a hidden variable that changes the findings. Still, I do not see this as a major hurdle and think that the associations provided with email information are valuable for my purposes and represented a wide range of activities from sport clubs, hairdressing, education, performing arts and many others. Similarly, the sizes of the associations ranged from 0-4, to over 1000 (i.e. Suomen Punainen Risti).

PURPOSE

From the associations which were provided by Asiakastieto, I hope to identify those who exhibit a high degree of self-organization (self-associating, self-constituting) among members of the association and therefore autonomy to make decisions in a way that is characteristic of distributed networks. Similarly, a high degree of transparency and democratization throughout the association with inclusive participation of members. In relation to the key concepts, amidst the autonomy and distributed nature of power in there still exists a shared ownership and alliance/bond that forms a community of freely associating people. Putting this all together, it can be said that the main focus of the survey which I hope to get at is in relation to the communication, governance and decision-making of the associations. The literature review has helped to highlight these themes and the survey will be done to pinpoint specific ways of working and challenges associations face in regard to these themes in the effort to develop design interventions. It should be noted again, that this is a user-centered survey as it hopes to collect information from potential users of a design intervention. This does not mean, though, that associations are the only potential users, but that associations represent a probable user. Therefore, associations are used to highlight relevant behavior of a particular user that may not represent the behavior of other users. It is my hope that associations are a good starting point which reveals patterns that can be generalized to other users that are not legally registered associations.

The target population is associations in Finland. The population of interest are those which exhibit the synthesis of values associated to peer production, commons and social innovation. As it will be seen, this is qualified using the question: "Which one of these statements best fits the purpose of your association as a whole?" This question is used to identify potential users. However, I also take into the following questions:

"To what degree do you have an effective process in place to establish rules that all members have helped to create?"

"To what degree are all members of the association involved in key decisions?"

"To what degree do you have an effective process in place to allow members to create new projects?"

These questions speak to the values of self-organization, distributed networks, autonomy, transparency and democratization with inclusive participation. Scale / context is not directly addressed, although an organizations ability to involve more members in decision-making does bring in the question of scale.

SURVEY ANALYSIS

LIMITS OF SURVEY

I should note that although I see associations as a valuable source of information in relation to the synthesis of values, it still remains an assumption that I will see characteristics of the commons, peer production or social innovation through the responses of associations from my list. There is an unknown gap between the target population of associations and the population of interest. Therefore, it was always possible that results were not as relevant as I would have hoped for.

Once the questions that are, as stated, essentially about the governance and decision-making were determined, the survey began with a quick round of feedback from peers and then progressed to a limited pilot of 50 contacts from the list of associations. The differences between the pilot and the full survey were minimal. Slight phrasing changes or word order were changed in order to emphasize the important part of the sentence or to be clearer.

Highlighting certain aspects of the question, for instance, moving "decision making" from the end of a sentence to the beginning to ensure respondents know the question of which digital platforms is specifically about making decisions and not about, say, storing information on google drive or promoting activities on Instagram. A couple of respondents on this question mentioned the use of google drive, twitter and Instagram as being used for decision making which could somehow be true, but led me to believe the question wasn't clear. Another instance is the question of which statement "best fits" the purpose of the association. I left a space open for respondents to write in other options which received one response that all of the options fit, which the question should not allow as it asks for the "best fit." I made sure to bold and underline "best fits" to correct this issue. I added one question to the full survey which is "approximately how many other organizations have you "teamed up" with?" I added this question after receiving several responses that referred to a desire to "team up" and a high degree of "clear communication" and a belief that it is easy to team up with other organizations. I wondered if this ease of partnership was perhaps because the number of them was low.

However, the results show that most respondents have 10 or more other organizations that they have "teamed up" with. If the respondents are completely accurate, this means that teaming up is easy and communication is clear even within a network of at 10 other organizations. Personally, I find this result difficult to believe at face value. I wonder if the term "team up" was too ambiguous or if respondents thought the question related to the act of agreeing to team up, not the terms of the agreement associated to the teaming up, which are harder to agree on. Perhaps it is easy to team up with another organization but agreeing on the terms are more difficult and my question didn't consider that. One last point that I realized after compiling the results is that I should have emphasized more clearly, just for safety, the difference between questions that related to internal (stated as "within") and external communication. Although I did say the appropriate things, I could have emphasized just to make sure people understood what I was asking and could feel more confident in the results.

No survey is perfect. What's particularly difficult with an online survey is the low motivation to answer the questions thoroughly or at all. The survey responses were lower than anticipated but in

comparison to the likely response rate for the alternative of telephone interviews of leadership and management of these associations, I think they are on par. With preparation and aggressive follow up, the response rates can be essentially the same (Abbott & McKinney, 2013, p. 210). However, since the response rate was low, I would not say that I can generalize my findings. I can still work with the information I recieved and use it as a starting point for a design process.

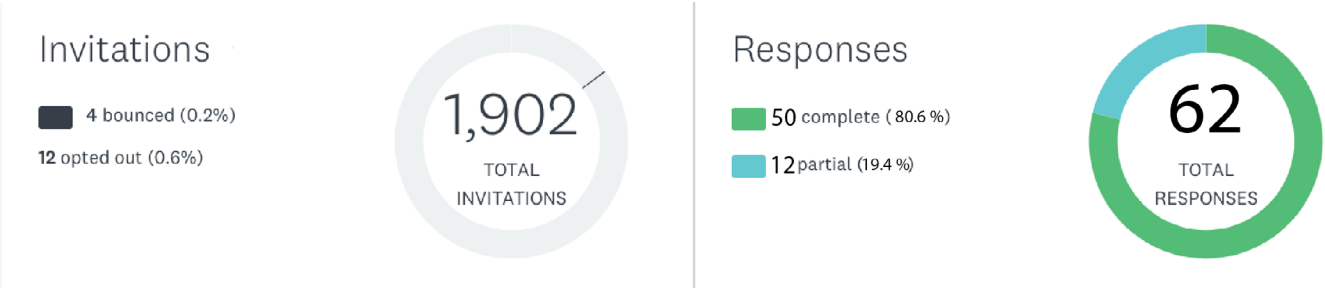


Diagram 3: Survey Responses

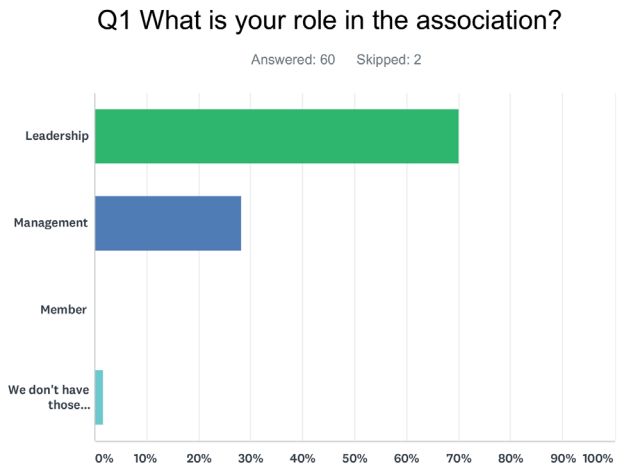
Under the assumption that attention spans are low for an online survey, I tried to ensure the language used was not academic but more casual. Without being able to go into detail and explain my questions at length, I was forced to use more generalized words that could be misinterpreted. For instance, "how satisfied are you with communication" could be taken to mean "are you happy with the outcome of the communication?" or "was it a useful discussion," "did you get what you wanted," or "how satisfied are you with the ability to communicate?" Basically, satisfied could mean many things. I considered also the words effective and structured. In relation to the question of how messy or clear communication is perceived, I was confronted with the dilemma that messy communication could be more effective or successful at a particular outcome than "clear" communication. Communication does not always have to be clear/efficient to get to the goal in the best way. Democracy is messy, after all.

A list of all questions can be found in the Appendix.

RESULTS

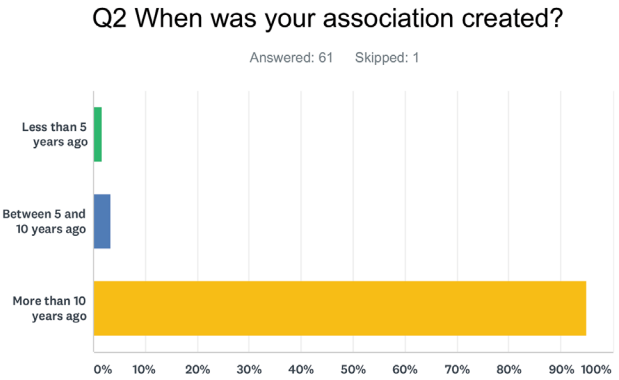
These initial charts show all responses, without any comparison or analysis. These questions are most useful by looking at the responses in an overall sense.

Diagram 4:



ANSWER CHOICES	RESPONSES	
Leadership	70.00%	42
Management	28.33%	17
Member	0.00%	0
We don't have those distinctions	1.67%	1
TOTAL		60

Diagram 5:

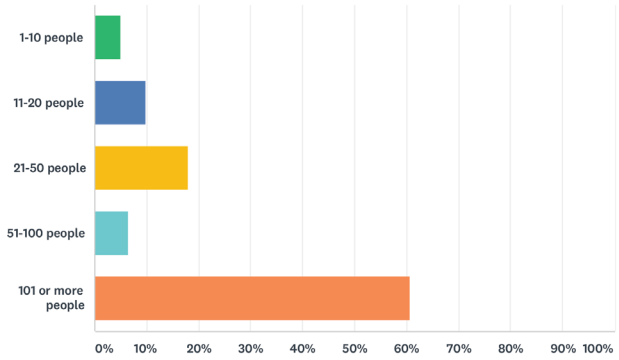


ANSWER CHOICES	RESPONSES	
Less than 5 years ago	1.64%	1
Between 5 and 10 years ago	3.28%	2
More than 10 years ago	95.08%	58
TOTAL		61

Diagram 6:

Q3 What is the approximate number of people in your association?

Answered: 61 Skipped: 1

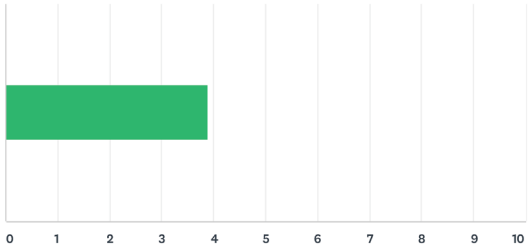


ANSWER CHOICES	RESPONSES	
1-10 people	4.92%	3
11-20 people	9.84%	6
21-50 people	18.03%	11
51-100 people	6.56%	4
101 or more people	60.66%	37
TOTAL		61

Diagram 7:

Q13 To what degree are decisions made in person versus digitally?

Answered: 59 Skipped: 3



ANSWER CHOICES	AVERAGE NUMBER	TOTAL NUMBER	RESPONSES
	4	229	59
Total Respondents: 59			

BASIC STATISTICS				
MINIMUM	MAXIMUM	MEDIAN	MEAN	STANDARD DEVIATION
0.00	9.00	5.00	3.88	2.48

Diagram 8:

Q14 Please select all the purposes you use digital tools for within the association:

Answered: 61 Skipped: 1

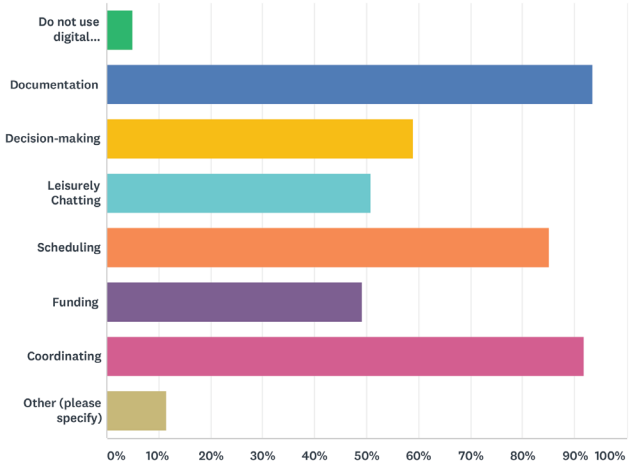
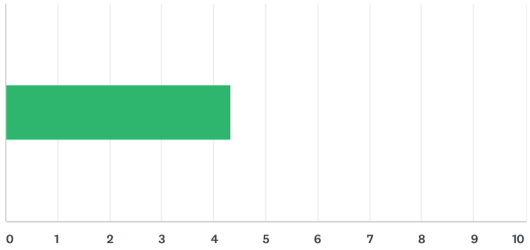


Diagram 9:

Q15 Approximately how many digital platforms do you use for communicating to members of your association?

Answered: 59 Skipped: 3



ANSWER CHOICES	AVERAGE NUMBER	TOTAL NUMBER	RESPONSES
	4	255	59
Total Respondents: 59			

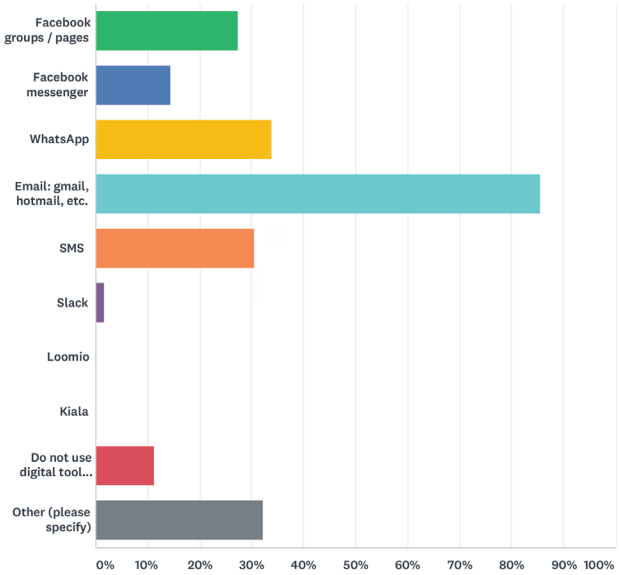
BASIC STATISTICS				
MINIMUM	MAXIMUM	MEDIAN	MEAN	STANDARD DEVIATION
1.00	10.00	4.00	4.32	1.81

Diagram 10:

Aalto Survey of Associations (ry) SurveyMonkey

Q16 For decision-making, which digital platform(s) do you use?

Answered: 62 Skipped: 0



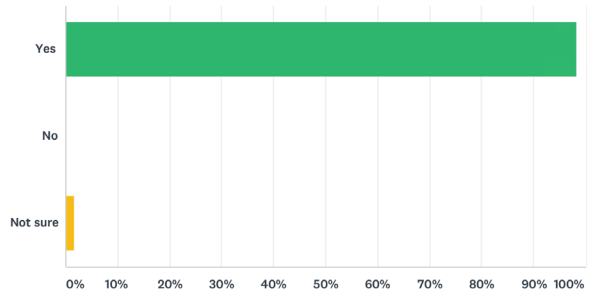
ANSWER CHOICES	RESPONSES	
Facebook groups / pages	27.42%	17
Facebook messenger	14.52%	9
WhatsApp	33.87%	21
Email: gmail, hotmail, etc.	85.48%	53
SMS	30.65%	19
Slack	1.61%	1
Loomio	0.00%	0
Kiala	0.00%	0
Do not use digital tools for decision-making	11.29%	7

Interestingly, of the responses to this question, no one selected the two platforms which are specifically dedicated to decision-making and clear dialogue as in Loomio and Kiala. Microsoft Groups was mentioned as an "other" a few times.

Diagram 11:

Q17 Does your association communicate with other organizations?

Answered: 61 Skipped: 1

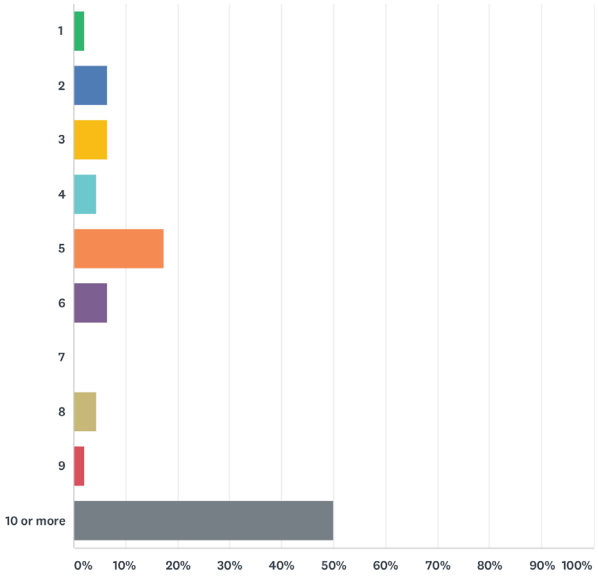


ANSWER CHOICES	RESPONSES	
Yes	98.36%	60
No	0.00%	0
Not sure	1.64%	1
TOTAL		61

Diagram12:

Q21 Approximately how many other organizations have you “teamed up” with?

Answered: 46 Skipped: 16

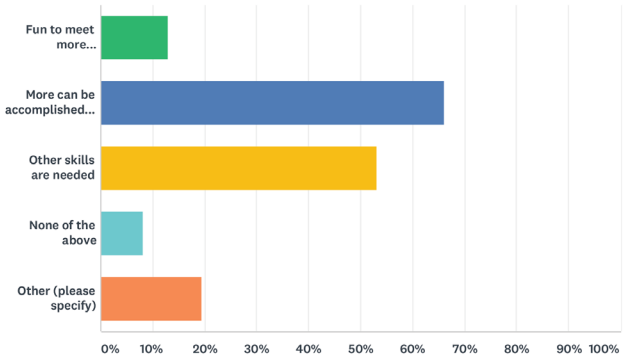


ANSWER CHOICES	RESPONSES	
1	2.17%	1
2	6.52%	3
3	6.52%	3
4	4.35%	2
5	17.39%	8
6	6.52%	3
7	0.00%	0
8	4.35%	2
9	2.17%	1
10 or more	50.00%	23
TOTAL		46

Diagram 13:

Q22 If you were to "team up" with other/more organizations, what would your reason(s) be?

Answered: 62 Skipped: 0

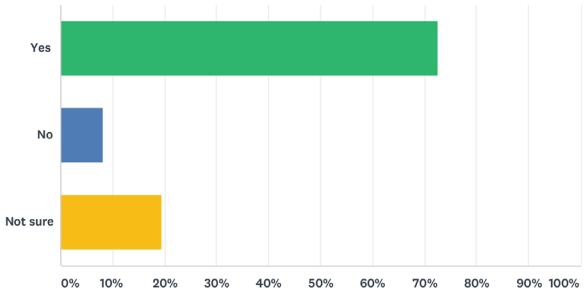


ANSWER CHOICES	RESPONSES	
Fun to meet more like-minded people	12.90%	8
More can be accomplished with more people involved	66.13%	41
Other skills are needed	53.23%	33
None of the above	8.06%	5
Other (please specify)	19.35%	12
Total Respondents: 62		

Diagram 14:

Q24 Do you feel that it is easy to “team up” with other organizations?

Answered: 62 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	72.58%	45
No	8.06%	5
Not sure	19.35%	12
TOTAL		62

Responses were majority from the leadership of the associations with almost all (95%) having been started more than 10 years ago. The responses therefore represent quite established associations. Logically, the associations largely had a membership over 100 people.

Decisions are mostly made in person rather than digitally but still an average of 4.3 digital platforms are used for communicating to members of the associations.

Email is the most prevalently used digital platform for decision-making.

98% of respondents said that they communicate with other organizations. Respondents said that their associations work with, or “team up”, with 10 or more other organizations.

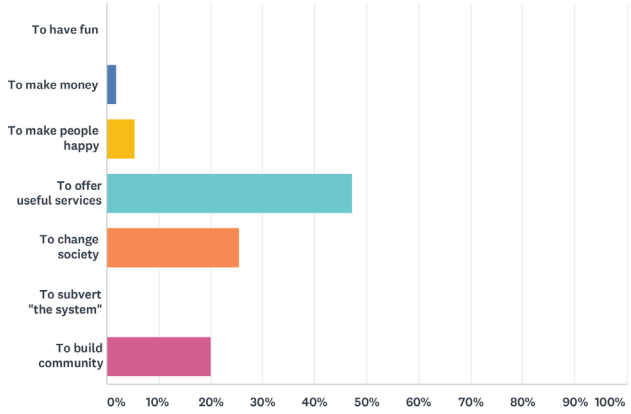
60% said they wish to team up with more and that it would be easy to do so. This last point, whether or not it is easy to team up with other organizations, may not refer to the ease of figuring out the details of any partnership, rather just the ability to generally team up.

As stated, the main qualifying question to determine the fit of the association respondent with the synthesis of values related to the key concepts was the question, "Which one of these statements best fits the purpose of your association as a whole?" The answers here were primarily within the answer, "to change society," "to offer useful services," and "to build community." To build community and to change society are purposes which I identify to fit as potential users of the platform. See below:

Diagram 15:

Q4 Which one of these statements best fits the purpose of your association as a whole?

Answered: 55 Skipped: 7



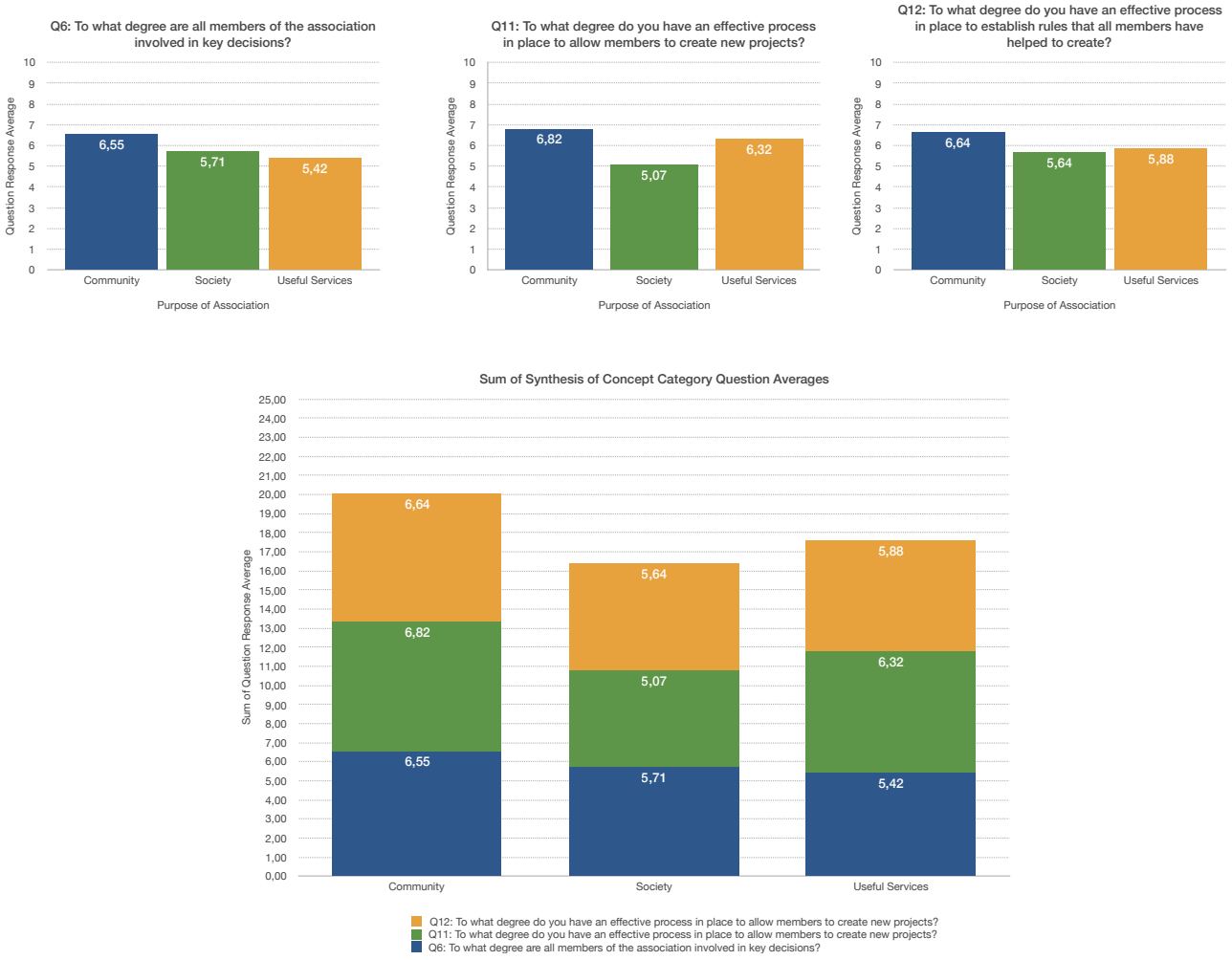
ANSWER CHOICES	RESPONSES	
To have fun	0.00%	0
To make money	1.82%	1
To make people happy	5.45%	3
To offer useful services	47.27%	26
To change society	25.45%	14
To subvert "the system"	0.00%	0
To build community	20.00%	11

Only one respondent replied to "make money," which makes sense given the reasons for creating an association in the first place, which is not to make money, but still I had hoped this would help to separate respondents from population of interest which is not focused on making money. To offer useful services is the most conventional of purposes which does not fit with the radical nature of problem framing 3 nor does it fit with the key concepts' novel approaches. This category, to offer useful services, is seen to refer to "business as usual," or to put another way, collaboration or governance as usual. However, the results of the comparison on purpose highlight some interesting and perhaps unexpected results.

These three categories of purpose create a valuable point of comparison which I will focus on now.

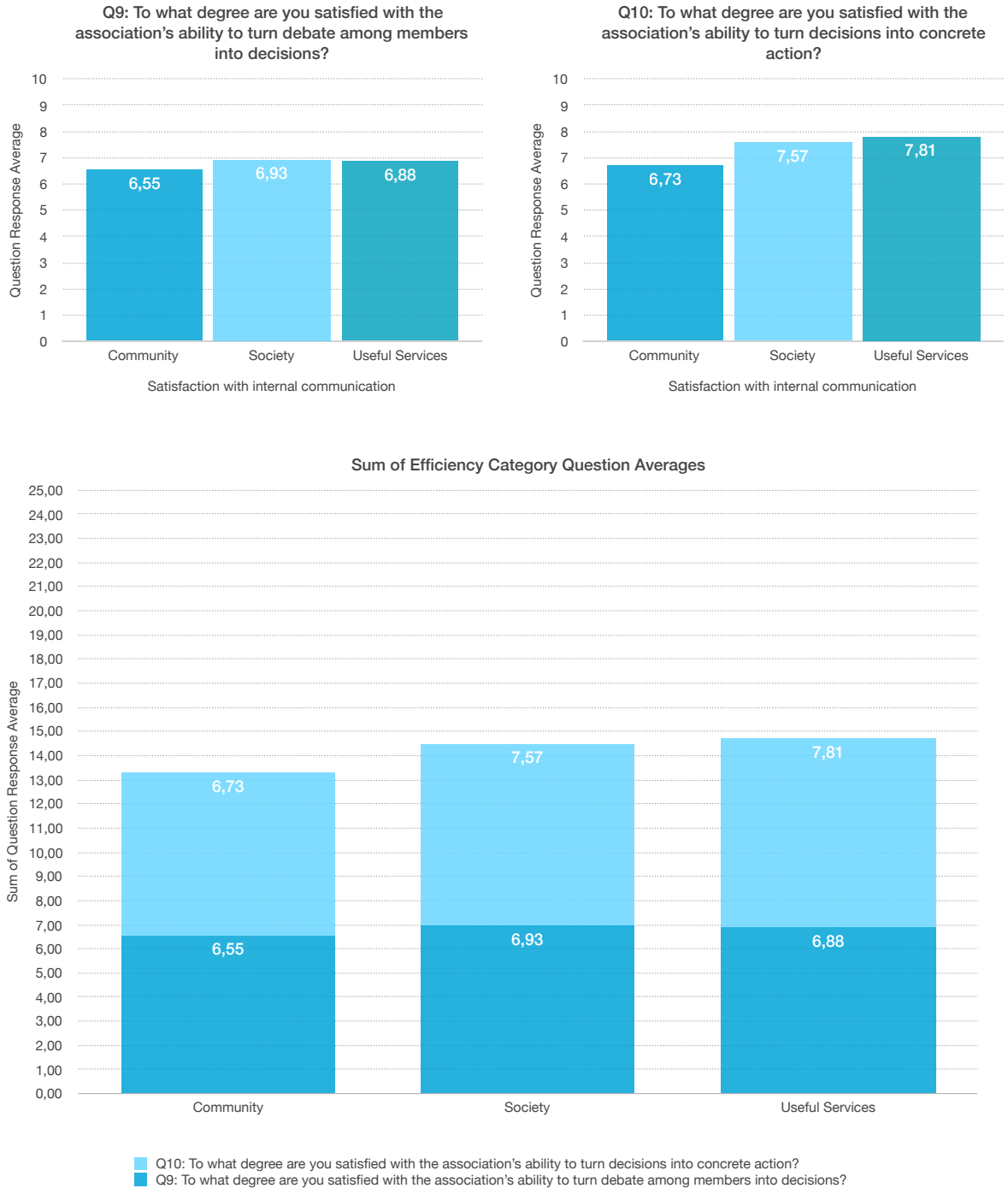
The next 4 graphs compaire the main purposes of "to change society," "to build community," and "to provide useful services" with various questions from the survey which themselves are grouped into categories. It does not encompass all the possible categories that I could make with the survey questions but the ones I have chosen make for relevant findings and interesting incites. Particularly, these categories can be helpful for the design intervention to follow. The explanation for why these categories were created can be seen in the methods section.
Lastly, I should note that unless otherwise specified, the graphs refer to internal communication and not external communication.

Diagram 16:



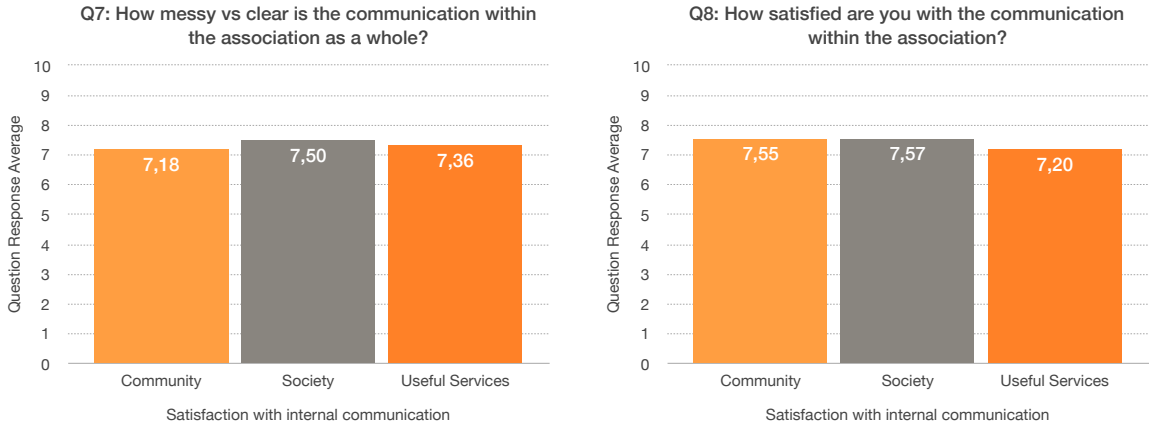
Questions most closely related to the synthesis of values from the concepts show that associations with the purpose to build community are most aligned. Interestingly, to change society does not seem to have a close relation to the concepts compared to the other purposes. To explain this, associations with the purpose to change society may believe that, although more people are involved, a very narrow and focused scope is required to change society. It could also mean that leadership has decided exactly what needs to be changed and members are broadly encouraged to participate in ways dictated by leadership. If members are allowed to create new projects and their own rules less than in other purposes, it seems that to change society is actually more regressive and centralized than the others. One must ask, how do these associations perceive society should be changed? This could represent a counter-productive organizational model from the viewpoint of the commons, social innovation and peer production.

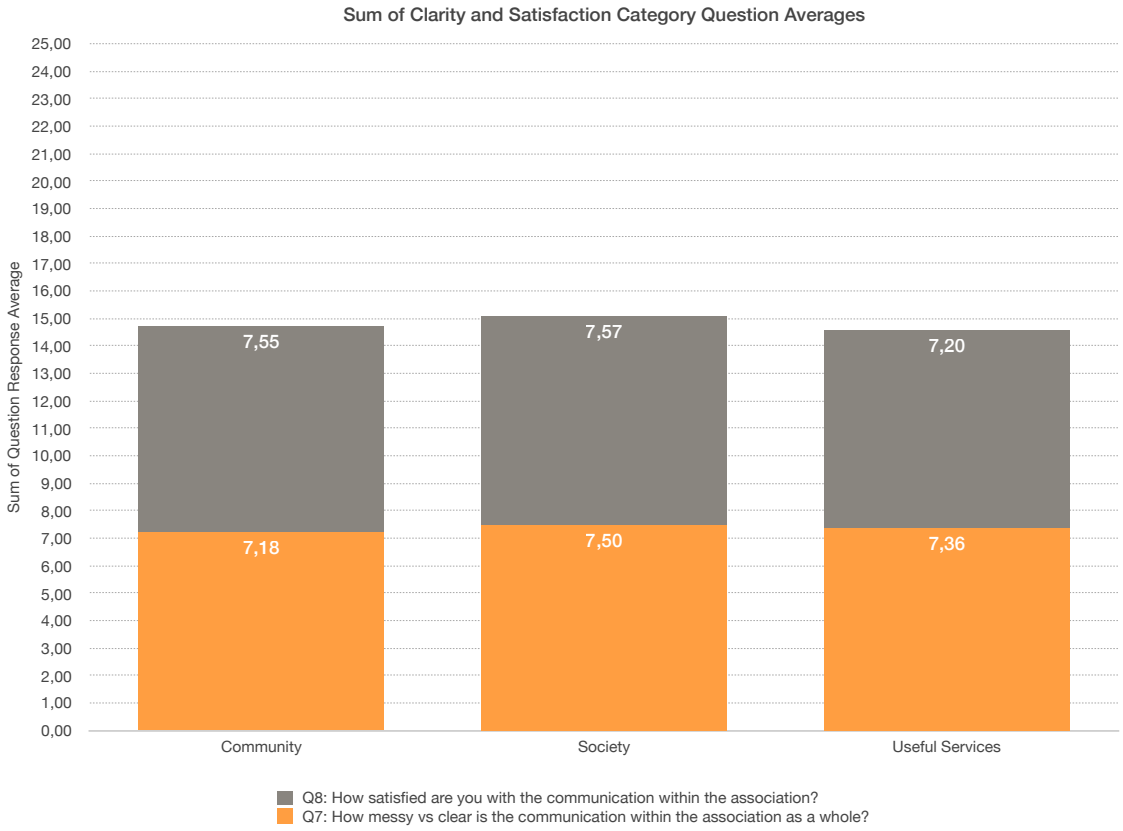
Diagram 17:



Although the purpose of community ranks first in relation to the concepts of commons, social innovation and peer production, it seems to have challenges with handling the increased inclusivity and scale of the association. Q6 (members' involvement in key decisions) relates most to degree of hierarchy and is the highest for useful services (from last category) so it makes sense that turning decisions into concrete actions may be easier seeing as how it is more hierarchical. As noted, the purpose to change society has hierarchical tendencies, as well, and is similarly able to turn debate into action.

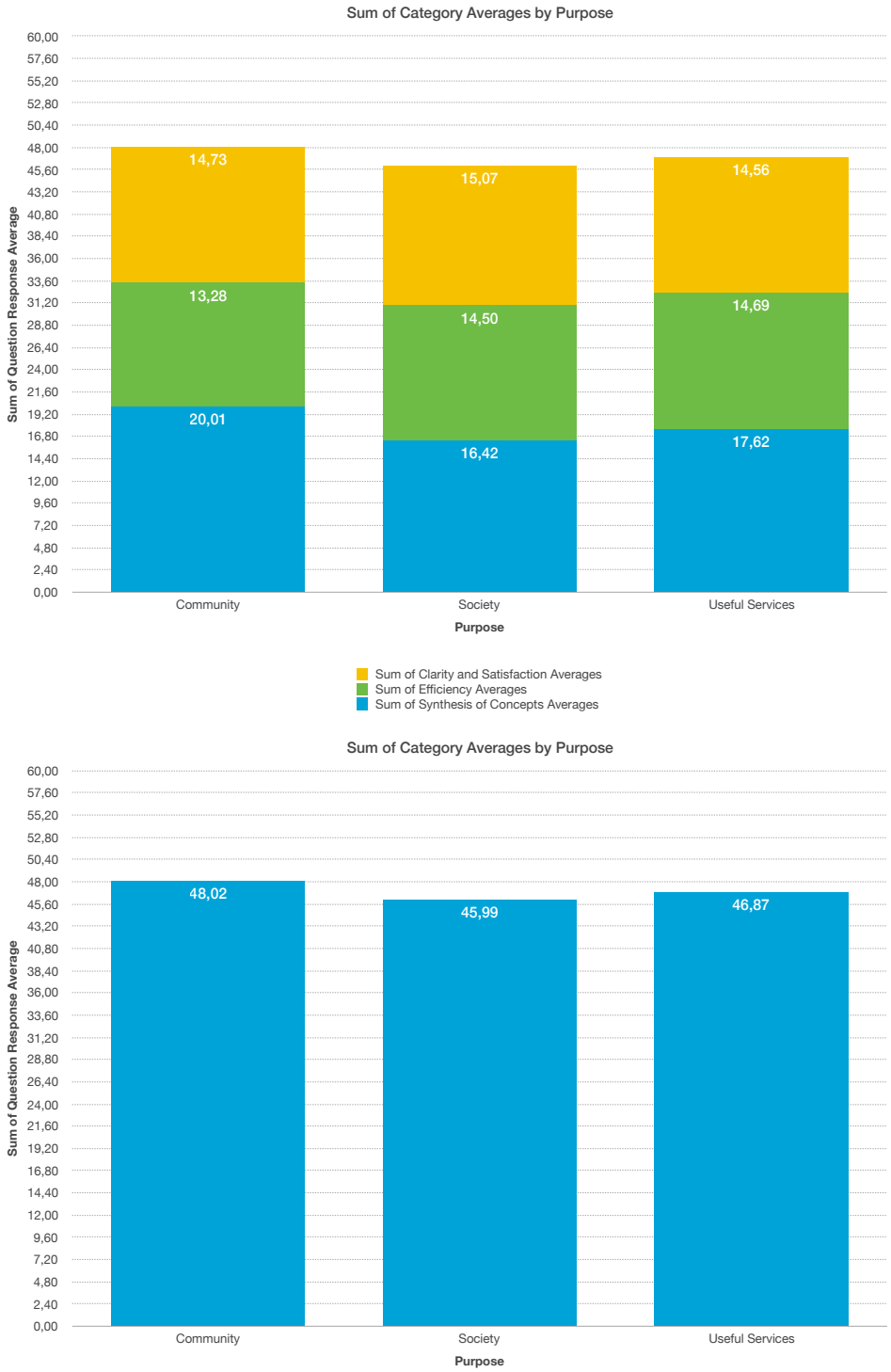
Diagram 18:





The purpose to change society has the highest perceived clarity and satisfaction. Community was a very close second for satisfaction. Since the purpose to change society was the lowest on the graph in relation to the concepts, the satisfaction and clarity of communication seen here may mean that associations with the purpose to change society are unlikely to make changes more closely aligning with the commons, peer production and social innovation seeing as how they are satisfied and perceive clarity. Again, this may represent a counter-productive organizational model from the viewpoint of the commons, social innovation and peer production.

Diagram 19:



Above: Combining these three categories (Synthesis of concepts, Efficiency, Clarity and satisfaction) into one overall graph reveals that the purpose of associations to build community ranked highest overall. The major contributing factor to this was the alignment with the synthesis of the concepts, which may have an effect on their lower efficiency category. Still, community ranks comparable in clarity and satisfaction which may mean that although decision-making and concrete action are more difficult when aligned with the synthesis of the concepts, it still leads to clear and satisfying communication, at least in terms of management / leadership. Key insights are seen at the specific question response level, as well, so it is worth looking into the particular question responses. I should note that although the overall difference in the responses by purpose are not that large, I do not know what kind of effect even this kind of subtle difference can have on the way an organization operates. Therefore, even though statistically it may not seem like a large difference, it is still taken to represent a different way of operating within the association at the least and could even have large implications.

Diagram 20:

What is the approximate number of people in your association?

Purpose	0-20 people	21-100 people	>100 people	No Answer	All
Community	1	2	8	0	11
Society	2	2	10	0	14
Useful Services	5	6	15	0	26
No answer	0	0	0	0	0
All	8	10	33	0	51

What is the approximate number of people in your association? (by percentage)

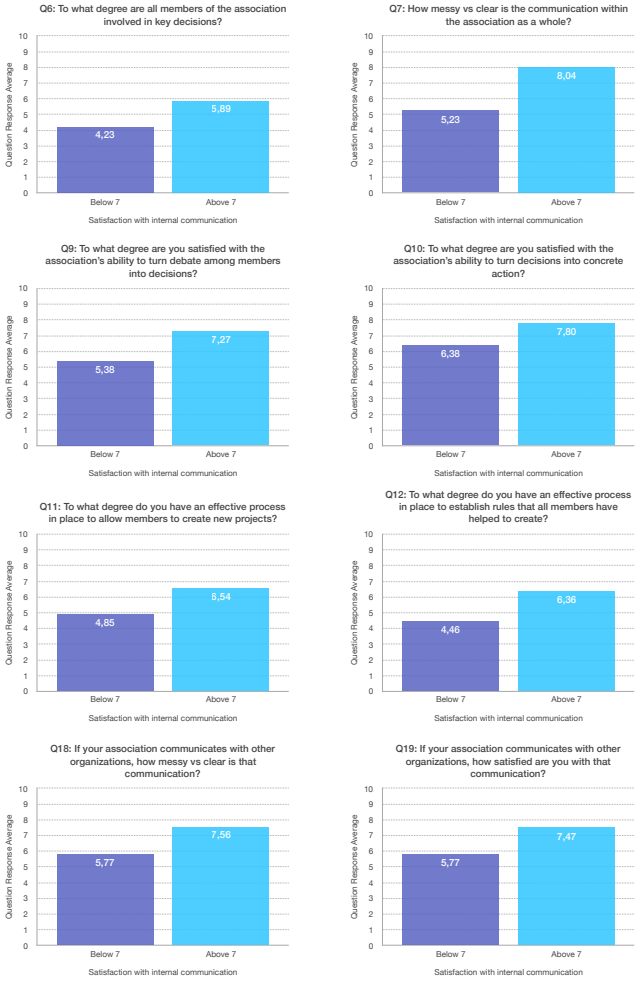
Purpose	0-20 people	21-100 people	>100 people	No Answer	Purpose Total
Community	9.1 %	18.2 %	72.7 %	0	21.6 %
Society	14.3 %	14.3 %	71.4 %	0	27.4%
Useful Services	19.2 %	23.1 %	57.7 %	0	51%
No answer	0	0	0	0	0
People Grouping Total	15.7 %	19.6 %	64.7 %	0	100 %

This chart shows how a majority of respondents (64.7%) are a part of associations that have over 100 members. This makes sense as respondents are mostly in associations that were established over 10 years ago. A majority of respondents were in the useful services purpose, which as the "status quo" category, seems to make sense also. Between purposes, the size differences were not dramatic, but it does seem that useful services have a larger percentage of smaller associations. Given the highest responses to the efficiency category for useful services, it may be easier to have a smaller operation.

Another key point of comparison is the reported satisfaction, which you can find in diagram 21. For this analysis, I have split up the responses based on a satisfaction below and above 7.

Reported satisfaction references question 8 in the survey which is, "How satisfied are you with the communication within the association?" This is used as a point of comparison with various other questions related to the concepts as well as external communication clarity/satisfaction. It should be noted that the strength of correlations has not been computed but whether or not there is a correlation becomes clear through the graphs. Also, the overall average degree of satisfaction was 7.5 and this would have been a better point of reference instead of splitting the responses as above or below 7 but the software did not allow for selecting between points (meaning only 7 or 8). This meant that a majority of responses in this comparison were over 7 but if I chose 8 as a point of reference, the comparison would have been just as lopsided.

Diagram 21:



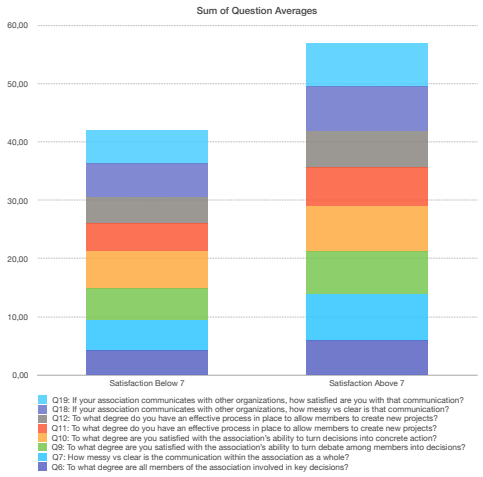


Diagram 21 selected for all responses to question 8 ("How satisfied are you with the communication within the association?") and separated them based on satisfaction below and above 7 out of 10. Using the responses above and below 7 out of 10, I compare various other questions related to the categories for synthesis of the concepts, efficiency as well as clarity of communication and satisfaction with external communication. What diagram 21 shows is how higher levels of satisfaction with internal communication correlated to higher levels of alignment to the concepts in the literature review, higher efficiency as well as higher satisfaction/clarity in external communication. This is quite a remarkable result since it consistently shows that satisfaction goes up as other key question responses go up. This result creates an argument that if you want leadership to be more satisfied with general association operations, then increasing activities related to the synthesis of the concepts and efficiency can raise satisfaction.

KEY TAKEAWAYS

- Responses were majority from the leadership of the associations with almost all (95%) having been started more than 10 years ago. The responses therefore represent quite established associations. Seeing as they are older (and more established), it does make sense that they have had time to gain membership over 100 people.

- Decisions are mostly made in person rather than digitally but still an average of 4.3 digital platforms are used for communicating to members of the associations.

- Email is the most prevalently used digital platform for decision-making.

- 98% of respondents said that they communicate with other organizations. Respondents overwhelmingly said that their associations work, or "team up", with 10 or more other organizations.

- 60% said they wish to team up with more and that it would be easy to do so. This last point, whether or not it is easy to team up with other organizations, may not refer to the ease of figuring out the details of any partnership, rather just the ability to generally team up.

- Associations with the purpose to build community are most aligned with the synthesis of values from the concepts.

- To change society has the least affinity to the concepts but felt internal communication was the clearest and were most satisfied. This could represent a counter-productive organizational model from the viewpoint of the commons, social innovation and peer production coupled with a possible unwillingness to change due to perceived satisfaction.

- The purpose of community ranks first in relation to the concepts, but it has challenges with handling the increased inclusivity of the association seen in the efficiency score.

- The purpose to change society has the highest clarity and satisfaction. Community was a very close second for satisfaction.

- The overall graph reveals that the purpose of associations to build community ranked the highest and therefore represents the most promising user to design for, seeing as how they align with the concepts the most, but are still able to maintain other metrics like clarity, satisfaction and a relatively comparable degree of efficiency.

- Higher overall satisfaction in internal communication positively correlates to:
    1. Higher degree of all members of the association being involved in key decisions. In other words, more involvement of members in key decisions correlates to higher satisfaction reported by management/leadership.
    2. Higher degree of having an effective process in place to allow members to create new projects.
    3. Higher degree of having an effective process in place to establish rules that all members have helped to create.
    4. Higher satisfaction with the ability to turn debate among members into decisions and the ability to turn decisions into concrete action.
    5. Clearer intra-organizational
    6. Clearer external communication
    7. Higher satisfaction in external communication.

Additionally, answers coming from leadership are perhaps likely to state that communication is clear, since they are the ones dictating the communication. If, on the other hand, members were asked how clear communication is, we might expect a different answer, at least not one so consistently approving.

So, the survey reveals early signs of what I call a Leadership Bias. It cannot be determined really until a follow up survey goes out to all the members of the associations which responded to this survey. My hypothesis is that leadership and even management who typically have a majority of decision-making power have a different conception of the quality of communication than members do.

If a follow up survey was done for members of these same associations and findings show that members had a far lower belief in clear communication as well as a corresponding set of replies from other correlating questions, then there would be some substantial evidence for a leadership bias in relation to the satisfaction on the way communication is handled in the association. This would perhaps be evidence of a need to change up the organization of the association to reflect more inclusive structures that do not so clearly delineate among members, management and leadership. Or, perhaps, an organization that transcends them all together.

Further, the leadership's current satisfaction could be seen as a barrier to onboarding new processes. This may mean that the design should not contend with current offerings but provide wholly new potential – essentially creating a new area for potential that the leadership did not know about. The fact that responses tended to fall within the distinct hierarchy of leadership, management and member points to the typical corporate hierarchy of the associations which responded. This, too, presents a challenge as even in the non-profit sector, there is still very traditional social organization. However, of the respondents who replied, almost all of them were founded over 10 years ago. This leads me to believe that either they are created in a time when the concept of less or non-hierarchical organizational schemes were less prevalent or that as time goes on, clear lines of hierarchy and power become engrained. I think it is more likely that these organizations started out very traditional.

INTERVENTION DESIGN

Having now reached a point where information has been gathered at length, it is finally time to put the pieces of information together into a design intervention that is meant to address problem framing 1 and 3. This would still be considered the ideation phase in Design Thinking terms. Once again, problem framing 1 and 3 are "a more equitable and ecologically sustainable world" and "to focus on more radical or far-reaching possibilities."

Thoroughly immersed in the literature of the commons, peer production and social innovation over many months, I have a come to the determination that a digital decision-making, governance or collaboration process paired with the key values of the synthesis could engender meaningful, scalable collective action to produce more equitable and ecologically sustainable outcomes. More specifically, the concepts and their synthesis which included distributed networks, the importance of various scales and contexts, self-organization and autonomy, transparency and democratization with inclusive participation, have pointed to the enabling of collective action as a major leverage point in relation to PF1 and PF3.

Therefore, the core features of the design intervention will be to create a new mechanism for social organization and value-creation. It will be a design which enhances the capacity for social mobilization and action around sustainable values, ideas, strategies, projects and organizations. In a nutshell, the design intervention is a platform that allows for groups, organizations, and self-organizing people to easily establish a scalable and equitable means of distributed e-governance. This tool is not just for official governmental organizations, or even just for associations, but can be applied in networks of various types of actors. With a basic framework of generic organizational entities (action group, coalitions, alliances) and actions (proposals, voting, tasks) provided by the platform which allows for customizable rules and activities to be established that fit the needs of the particular users.

In relation to PF1, "equality" for the platform is about embedding more equitable power dynamics among users which also ensures value-creation has a higher capability to act collectively in a valuable and coherent manner, even in networks. This is done by using a framework that allows for collective decision-making, instead of in a strictly hierarchical, top-down manner. What this could look like in practice is a decision made by the workers not just the CEO. What this could look like is a newly founded grassroots group, without any structure whatsoever, has a turn-key structure for collective decision-making and collaboration before they get stuck in the traditional hierarchies that we're so accustomed to. What this could look like is a university wide strategy hashed out and voted on among a complex network of departments collectively, transparently and fairly. This kind of inclusive, collective decision-making can then lead to equity of income, access to healthcare, education, sustainable solutions, etc., depending on the focus of the networks and the progress of collaboration.

In relation to PF3, "radical and far-reaching" for the platform is seen particularly in its inclusivity of decision-making but also in the scalability and customizability. The framework, which you will soon see, allows for collaboration from a small to vast scale. As noted much earlier in the evaluation of concepts, an enduring struggle of collaboration has been the conflict between quality and scale. As scale increases, quality decreases and so does inclusivity. However, the framework of this platform seeks to create scalable, high-quality collaboration and collective decision making in a visually comprehensible way.

This brings me to an important principle of the platform which is that it is functional. The platform is based on a principle of being functional in that the users have a set of abilities that are available to them and they decide what is the most functional way to arrange themselves. This means that the possibilities for arranging your action group, within coalitions, alliances, networks, matrix, etc., are as unique as their imaginations allow. This freedom, within a basic set of rules, makes calculating the scenarios that could occur and visualizing them quite a challenge. However, this principle relies on the resourcefulness of the user to creatively construct their collaboration, rather than the platform deciding how they should do it. It is functional by way of the users forming relationships that are functionally useful to them. The creativity that the platforms enables to create new collaborative networks could have far-reaching implications beyond what I could possibly imagine and it is this principle of what collaboration is functional to users that propel the evolution of the platform forward.

As the research streams that were evaluated represent alternatives to traditional capitalist or even non-market logics, a design which aligns with this aspect could be impactful, as well. The platform exemplifies this most prominently by the fact that collaboration among actors on the platform is not possible only through some sort of monetary transaction, although perhaps it can be a component. These are not markets, but networks of actors communicating and collaborating to produce some kind of value relevant to the actors involved.

A COLLABORATION TOOL

From an early stage in this design process, and basically as a member of society, I have seen the immense capabilities of digital technologies and have had the possibility of a digital design outcome in mind, while keeping options open to include outcomes other than a digital design. However, as the literature review progressed, the ability of digital communication to foster connection and collaboration simply could not be ignored, at least not in its entirety. Human, face-to-face connection, locally-rooted interpersonal dialogue, and the physical world cannot be ignored either and a balance must be struck that uses the best of both worlds.

Fundamentally, the commons, peer production and social innovation provide an approach to collaboration that is in many ways the antithesis of a capitalist framing of society based on competition. As described in the literature review, capitalist and neoliberal ideology are incredibly pervasive the world over, to the extent that people have generally internalized this way of thinking and acting in the world. Homo economicus is true to the degree that we have shed ourselves, consciously and unconsciously, of the other aspects of our humanity. The prevalence of capitalist, competition-based thinking means that a collaboration tool, while difficult to implement in practice due to the conflictual nature of the idea, could provide radical change in social practice that is more equitable and ecological and is fitting with PF1 and PF3.

Therefore, the task then is to design a digital and non-digital process for effective communication that enables a high degree of collaboration. It should be noted that connectivity in a digitally networked environment is not technically challenging. We are almost all, in one way or another, connected within the digitally networked environment, whether it's through facebook, linkedin, youtube, etc. However, the quality of that connection is very much still in question and technically challenging. The ability to foster high quality collaboration on many scales simultaneously, especially in a society so driven by competition, is a powerful tool for change indeed.

A PLATFORM

The emergence of the digitally networked environment of the internet has allowed for the ability to enhance growth, productivity, democracy and individual freedom (Benkler, 2003, p. 9). Most likely, we have all noticed the meteoric rise of digital platforms. But still, it's important to understand the logic, reason for success of a platform, and why it's a fitting path for my design intervention.

Reed's Law, articulated by computer scientist David P. Reed, states that peer-to-peer interaction over internet-based networks has exponential growth capability, especially in comparison to offline or broadcast interaction models (Reed, 1999). Further, within group forming networks (online communities), which have the function of enabling and supporting "affiliations to pursue shared goals" (Bollier, Ours to Hack and to Own, 2017, p. 70), like those seen in digital commons, website forums, facebook groups, etc., the collaborative and exponential growth potential has become self-evident as so many people have become accustomed to interacting in online communities. The development of community-based tools to enhance the ability of group forming networks is therefore a logical step to design an intervention that can enable growth of alternative means of producing value, that is, more sustainable versions. The logical step to design a digital community tool that enables a group-forming network (i.e. a facebook group with a shared common purpose) to form mergers/coalitions/partnerships with other group-forming networks has higher impact as Reed's Law gives "powerful bonus to interconnection." (Reed, 1999) If Reed's law is correct about the exponential rate of value creation between digitally-networked individuals in a group, which major enterprises have already leveraged as part of their business strategy, the ability to collaborate between and among many groups could help to enable exponential value creation and systemic change with such coordinated and focused efforts among numerous group-forming networks/communities. Further, if we step back and view associations, enterprises or whole governmental departments as group forming networks/communities which enable and support affiliation toward shared goals, a digital collaboration platform that enables interconnectivity and collaboration among these wider set of actors could be transformative. The formation of larger networks of interaction, while still maintaining nested, self-governed and autonomous communities within them goes hand-in-hand with the Ostrom's principle of multitudes of distributed nodes of power as defined in polycentrism. This nested capacity aligns further with polycentrism as the autonomy of individual groups to self-govern corresponds to the concept of allowing for governance that is as proximate to the activities being governed as possible.

A valuable source of information in regard to platforms and collaboration can be found in the platform cooperativism movement which has two main tenets of "communal ownership and democratic governance" of digital platforms (Scholz, 2017, p. 23). This movement is in direct opposition to the rise of privately-owned platforms which have ushered in a new era of corporations like Facebook, Airbnb, Uber, Amazon and others who have rapidly extended their reach to a global audience while simultaneous reducing accountability, privacy and collective bargaining power. Further, the global reach of these platforms allows for a massive concentration of wealth and power. So while cooperatives and cooperativism are not one in the same, Platform Cooperativism draws on the principles of cooperatives as originally developed in the 1944 Rochdale Principles and later adopted by The International Co-operative Alliance in 1995 which states that the seven cooperative principles are: anti-discriminatory open membership, democratic member control, equitable member economic participation, autonomy and independence, education, training and information, cooperation among cooperatives, concern for the community. (Scholz, 2017, p. 27).

THE LANDSCAPE VIEWER

The platform framework is built on the idea of nested hierarchies of autonomous units. Nested systems were described by Elinor Ostrom during the commons research as being important for effective and efficient action as scale increases. The platform is built around the ability of people to organize within "action groups" and continually organize, collaborate and communicate on more and more complex levels. This complexity is illustrated in what is called the "Landscape Viewer." The landscape entails all the action groups and their connections with other action groups in all their forms of coalition, alliance, networks and matrix. A connection between one action group and another is basically an agreement to communicate and collaborate through various actions that together create governance. Once a connection is made to another entity, which only occurs based on some kind of voting or consent, the units that make up that connection can use the actions available to them collectively, whereas before the connection, they would not be able to create actions collectively.

The landscape, which shows the connections of action groups, is spatially represented by the platform's logic. This means that if a new coalition or new alliance is made, the platform automatically reorients the landscape to reflect the new entities based on the logic of the platform. The logic of orienting the landscape could entail something like "a connection cannot run through an action group to another that is not connected," but instead the whole region where the connection is made is readjusted to make room for a new connection. In other words, the geographic representation of the landscape is according to algorithms of spatial alignment in the platform, which are not necessary to define for the purpose of this thesis. The landscape viewer may seem like a small development. However, the introduction of a mechanic that enables higher levels of complexity of collective action in a comprehensible way through the spatial and functional representation of the networks that has built into its core a structured but still tailored decision-making functions is no small development. Built into the platform is collective decision-making, which users apply within the relevant networks. The spatial representation creates a comprehension of a person's networks that would be too abstract to really understand otherwise. The landscape viewer builds this level of comprehension into its architecture. The collective decision-making that the platform enables, although without clear details as to how it will be done yet, creates a far more equitable situation than typically associated with corporate organizational ladders. Further, the platform digitizes decision-making through a process of voting that makes decisions and opinion transparent and into data that can be easily analyzed.

This spatial representation in the landscape viewer is not just for viewing, either. Users can craft their networks as representations, but on top of that, they do it digitally which enables add on value of actually communicating and collaborating with the users in that network. It's not just a system map, the actors involved are on the other end of that digital representation, ready to communicate. It is an interactive visual which allows the user to click on relationship between action groups, alliances, coalitions, etc. and see the communication within that relationship. Clicking on the relationships allows the user to see communication but also allows the user to suggest new actions for collaboration within the group at which ever scale the user deems necessary. Once a connection is selected, other windows, which are not detailed in this thesis, reveal the related communication. What is important to know, then, is that the landscape spatially organizes collaboration and within that spatial collaboration, the user can then look into further details which are embedded in it.

Transparency will be a determining factor between this platform design and most others, in that the data produced and collected on the platform will be completely open for all to see. One of the platform's roles is to provide that mass of data and translate it into easily understandable metrics that can be used to interpret behavior on the platform and create new knowledge, leading to new innovations for collaboration. There may

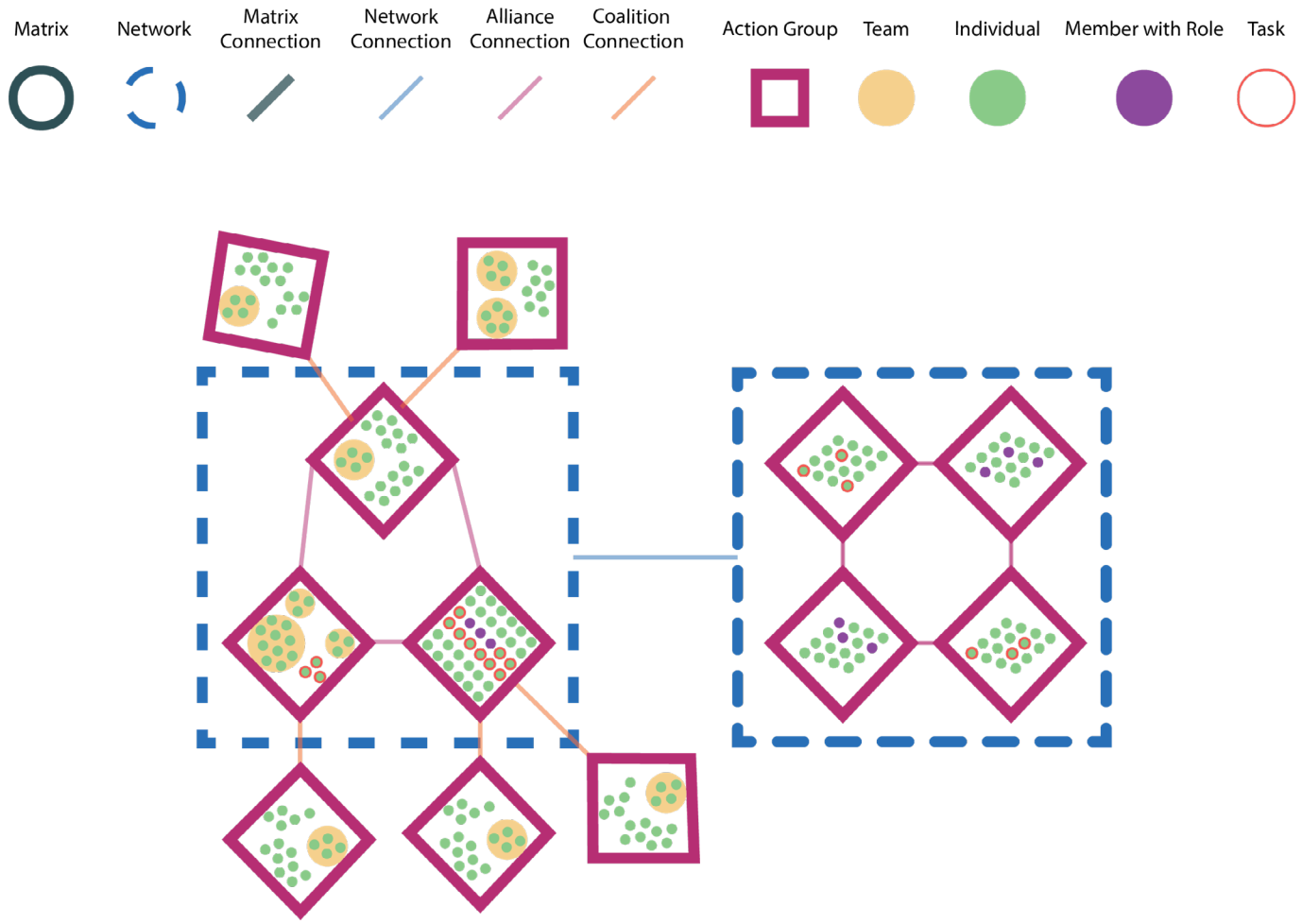
be reasons for certain communications to be kept within certain spheres, but this can be refined further.

Incorporating an end-to-end principle, which ensures that operations run on software and hardware within the ownership and control of the users (Kleiner, 2017, p. 68), supports the communal ownership and democratic governance of platform cooperativism, as well. This means that actions between users on the platform will be collective, but also that ownership of the platform will be collective. The details of the collective ownership of the platform will not be a focus now but could arise through users out of the functions of the platform itself.

Lastly, these designs represent only some facets of a possible platform. I have purposely focused on features which are not prevalent already. I do not talk about a basic chat function, or even a specific voting mechanism. These are digital tools that exist already and although this platform would definitely need those functions, they are not what sets it apart from others and are therefore indirectly implied as a piece of the puzzle. What is focused on instead is what makes the platform uniquely positioned and that is represented in diagram 23.

The following graphics and the details of the design are merely representational at this point. They are meant to convey an idea and are subject to change, which they certainly would with further development. With that being said, to begin, here is a possible scenario of collaboration in the landscape viewer when all "layers/ scales" are shown:

Diagram 23:



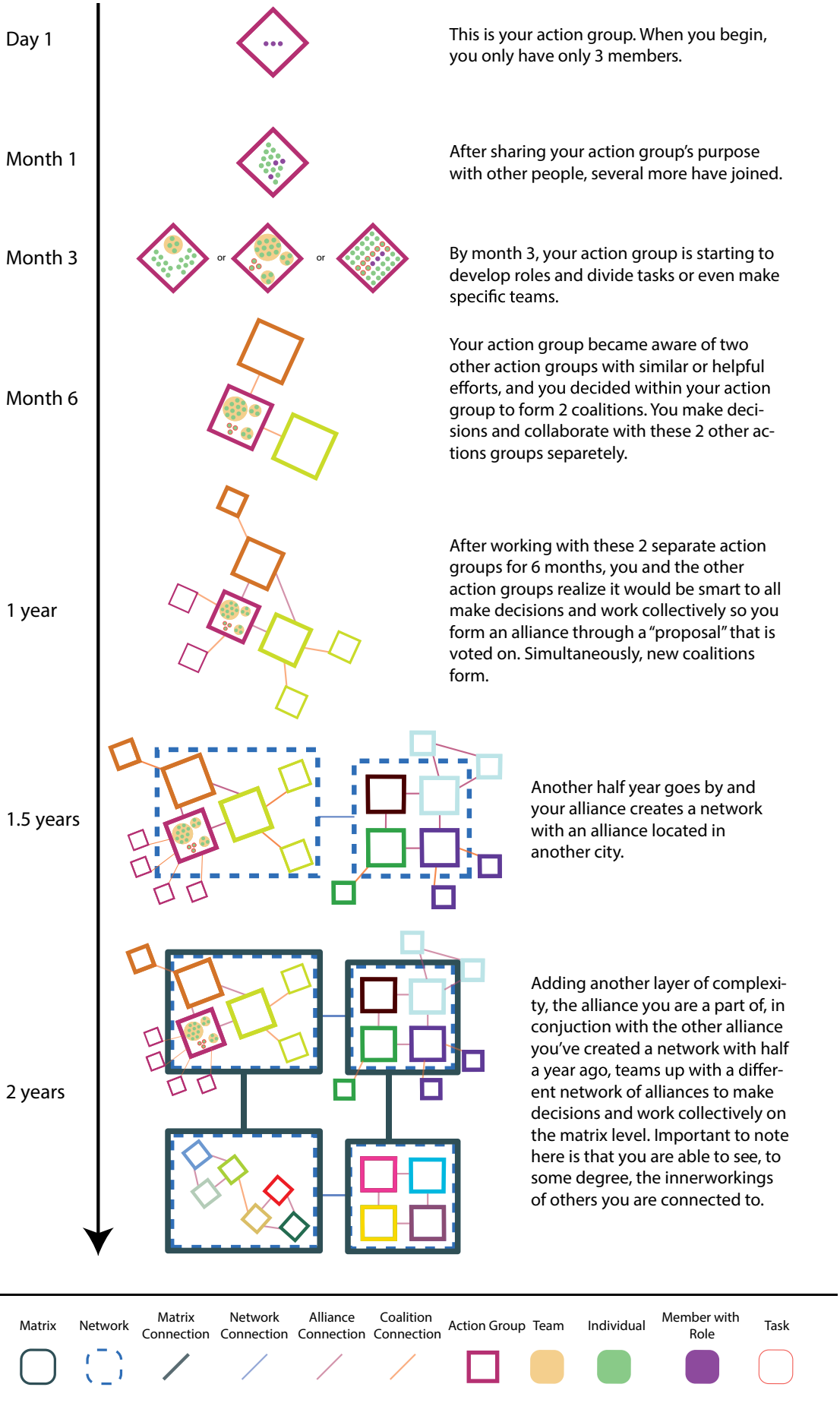
Represented in diagram 23 above are twelve action groups (maroon squares) which have various amounts of individuals, teams, roles and tasks in them. If one was to click on a particular action group, information relevant to that group would be visible as well as communications within that action group like votes and proposals, the individuals in the group, the teams that exist and the roles that have been given. There are also orange connections between action groups which represents a coalition between two action groups. When clicking on the coalition connection, the history of communication is available as well as other relevant information about the coalition. Similarly, the thin pink lines symbolize a connection of action groups into an alliance. Similar information is available when clicking those connections. Lastly, in this overall view, a blue connection symbolizes a network. The next sections describe in more detail the function of the various layers / scales. The overarching scales are the micro, meso and macro scale.

It is important not to get stuck on the static nature of these representations. These should be understood with a focus on the temporal nature of the platform. The landscape viewer is dynamic. It is in constant fluctuation based on the activities of users and an image cannot adequately capture that dynamic. This aligns with the dynamic nature of collaboration and communication in society. In civil society and the grassroots level, self-organizing individuals can team up to collaborate on certain issues (as evidenced by the literature review), and that collaboration can lead to larger and larger networks of collaboration. This platform does the same but gives certain names to the level of organization from action group up to matrices. These titles do not necessarily mean that the members of that action group are not actually members of a legally registered entity like an association or even company. However, it does not require formalization into legally registered entities to collaborate on increasing scales.

This platform should be able to fit smoothly within networks of collaboration among legally registered entities, though, in that collective decisions are not legally binding. This does not mean that if a collective decision has been made, and a company (which may exist as an action group on the platform) who is in that network finds it to be too egregious to go along with the decision that they will not face repercussions. The social reputation of that action group/company may be damaged, and communication / collaboration may change afterward among its connections. The same goes for non-formalized groups. Social capital / reputation is likely to hold significant power among collaborators.

Diagram 24 shows the temporal nature of the landscape viewer, illustrating a particular scenario that could arise over time.

Diagram 24:

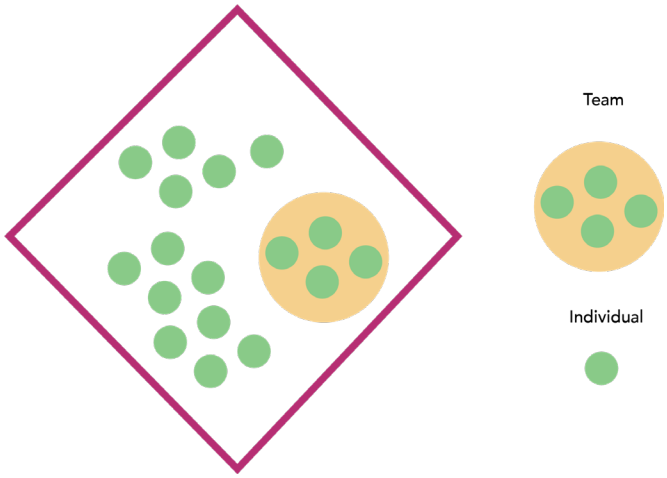

Day 1
This is your action group. When you begin, you only have only 3 members.
Month 1
After sharing your action group's purpose with other people, several more have joined.
Month 3
or
or
By month 3, your action group is starting to develop roles and divide tasks or even make specific teams.
Month 6
Your action group became aware of two other action groups with similar or helpful efforts, and you decided within your action group to form 2 coalitions. You make decisions and collaborate with these 2 other actions groups separetely.
1 year
After working with these 2 separate action groups for 6 months, you and the other action groups realize it would be smart to all make decisions and work collectively so you form an alliance through a "proposal" that is voted on. Simultaneously, new coalitions form.
1.5 years
Another half year goes by and your alliance creates a network with an alliance located in another city.
2 years
Adding another layer of complexity, the alliance you are a part of, in conjuction with the other alliance you've created a network with half a year ago, teams up with a different network of alliances to make decisions and work collectively on the matrix level. Important to note here is that you are able to see, to some degree, the innerworkings of others you are connected to.
Matrix
Network
Matrix Connection
Network Connection
Alliance Connection
Coalition Connection
Action Group
Team
Individual
Member with Role
Task

Before going too far into the details of individual objects in the landscape viewer, I should quickly tie in the literature review in a more explicit way. The synthesis of value is what is particularly important for the design intervention and I think based on what has already been described, it can be argued that all of the values have come into play.

Distributed networks emphasize a multiplicity of power/ decision-making nodes. Scale and context can be seen quite clearly with the various levels of collaboration, which I get into more detail in the next section. Self-organization is addressed in that individuals find projects and coalesce around the ones they want to work on. Autonomy is inherent as no one central power nodes can command hierarchically to individuals to take particular actions. Further, individuals are not compelled to remain in any form of collaboration and a system of voting allows for each individual to exert their will. Transparency is highly relevant in that normally abstract and purposefully invisible networks of collaboration are made visible. Not only that, but communication between other groups / individuals that does not include your own group can be viewed. Lastly, democratization with inclusive participation is quite evident as each individual is able to vote and voting is a core feature of the platform. The exact details of voting procedures, as I mention elsewhere, are not within the scope of this thesis and would be one of the main topics to focus on for future development.

MICRO SCALE: ACTION GROUP

Diagram 25:



Action Group: an action group is more than one individual and the maximum is set to a designated number at the formation of an action group. This limit can change if members wish. The function of an action group is to coalesce around a particular concept or idea but to maintain a small enough scale that face-to-face collaboration is meaningful and practical. Therefore, the maximum is set by the members of the action group, as they should dictate what size meets their situation and needs. Individuals thus become members of an action group. This does not mean that an action group cannot function completely digitally, but an action group is the unit in which most of an individual's communications occur, so the size is dictated by the ability to communicate person to person effectively.

An action group can be thought of as "human-scale," something conceptually comparable perhaps to a small-town community where individuals know each other's names. This is the most personable unit and it is likely that action groups form among people who have known each other previously

or live in the same area. That does not mean that individuals must personally know members of an action group to join, however. If an individual is interested to join an action group, the entry into that action group is decided upon by members designated to make that choice within the action group. Those designated members, however many, will have interaction data on the individual asking to join available to them to qualify entry. Read the individual section below to see what profile information is collected on individuals. An action group has the most actions available. This is the scale where most activities (comments, likes, votes, contributions) happen and therefore the most actions are needed to cater to this.

Team: teams are groups of members within an action group. Teams are created based on functional need within an action group. Similar to a process of "forking" in peer production, individuals in an action group who wish to take a project in a new direction can create a new team and other members can join. Teams can also function as units of specialization as necessary within an action group. Teams only exist within action groups. A unique feature of teams is that they can be inter-action group. What this means is that when an action group creates a team, you can select other action groups to join that team, as well as individuals of that other action group (although the other action group may want to fill in their own team members).

Individual: an individual is one person. Individuals do not many have functions / actions that they can do unless they are a member of an action group. An Individual's interactions on the platform is collected to form a profile. The profile compiles an individual's profile photo, self-description, votes, contributions, likes, and comments. Votes, contributions, likes and comments are aggregated by number and category, but individual actions can be viewed. The prevalence and quality of each helps an action group determine whether to accept that individual as a member.

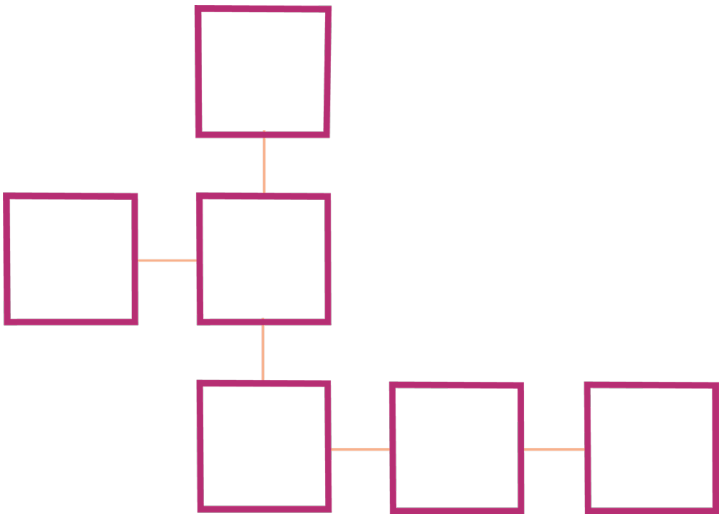
MESO SCALE: COALITIONS & ALLIANCES

As complexity grows in the landscape for the action groups, there will be a logic or incentive to move from coalitions to alliances, alliances to networks and so on to consolidate decision-making and activity into more coherent governing bodies that take actions as a whole rather than as more separate endeavors that do not communicate together. Significantly, as an action group moves from coalitions, to alliances and so on, the group enables communication between action groups. An action group creates a coalition to communicate with another action group. If several action groups want to communicate together, an alliance must be formed. Communication entails voting, proposals, chat, tasks, etc. These are actions that connecting allows you to do with other action groups. The formation of a level of complexity above an action group, like a coalition or alliance group, refers to an inter-action group. Certain functions exist at the action group level and at the interaction group level.

Coalition: a coalition is the formation of two action groups. Action groups maintain their autonomy but are able to scale up collaboration that does not necessarily demand consistent face-to-face interaction. A coalition is a bilateral agreement of collaboration. It should be noted that action groups can function without connection to any other action groups, but they will not leverage all the power of the platform which is meant to make collaboration easily scalable. A practical function of forming an coalition is if an action group of familiarized people comes into contact, either physically or virtually, with another action group and they see benefit of collaboration but see reason to keep separate their action groups, either for reasons of locality, familiarity, or specific

focus of the action group. Action groups can form an alliance with another action group based on a proposal, and then a vote. If the vote passes on both ends, based on the voting rules of each action group, then the alliance is formed. Once a coalition is formed, the designated members are tasked with creating a set of rules for collaboration between the parties. Once this is done, it is put to a vote within the separate action groups and the rules pass based upon each action group's specific voting rule requirements. If coalition terms do not pass, negotiation via general chat continues until voting passes in each action group or the coalition is abandoned due to inability to come to common coalition rules. At the level of a coalition, only certain actions are available at this scale.

Diagram 26: Coalitions

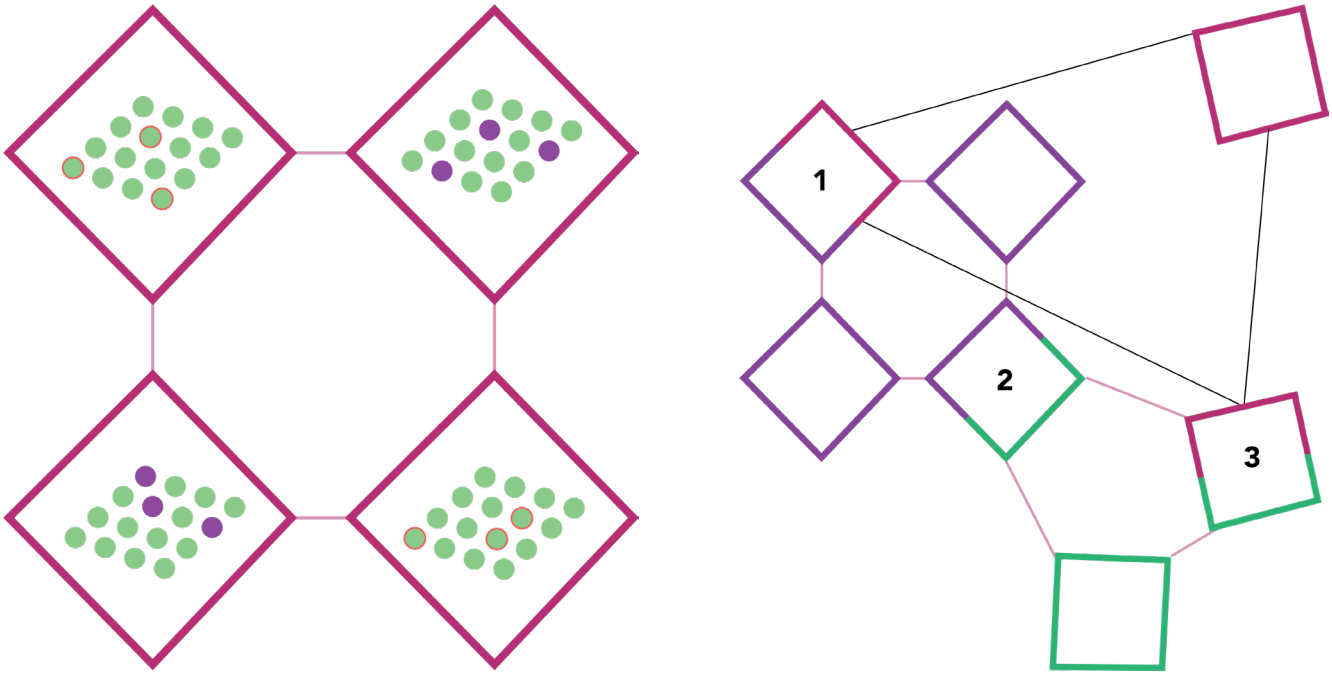


Alliance: an alliance is the formation of three or more action groups into collective communication. This is a trilateral or more agreement of collaboration. A functional reason for creating an alliance would be if several coalitions have been formed among common action groups and those groups see acting collectively as beneficial but also helping to reduce the complexity of many bilateral agreements when one alliance could be simpler.

The first graphic in diagram 27 illustrates four actions groups who have formed an alliance. Now that they have formed an alliance, communication and collaboration can have collectively between them.

The second graphic illustrates a more complicated structure of three alliances which have interactions with each other but interaction still occurs within each alliance separately. The alliances are represented by the colors green, purple and maroon. In this scenario, three different action groups are members of two alliances, represented by the numbers. This is a possible scenario of collaboration but for members of these action groups, they may realize or decide that forming a network among all the action groups, which enable them to make decisions and communicate collectively, would also be suitable. This does not mean that the alliances disappear, but that communication is possible among all members.

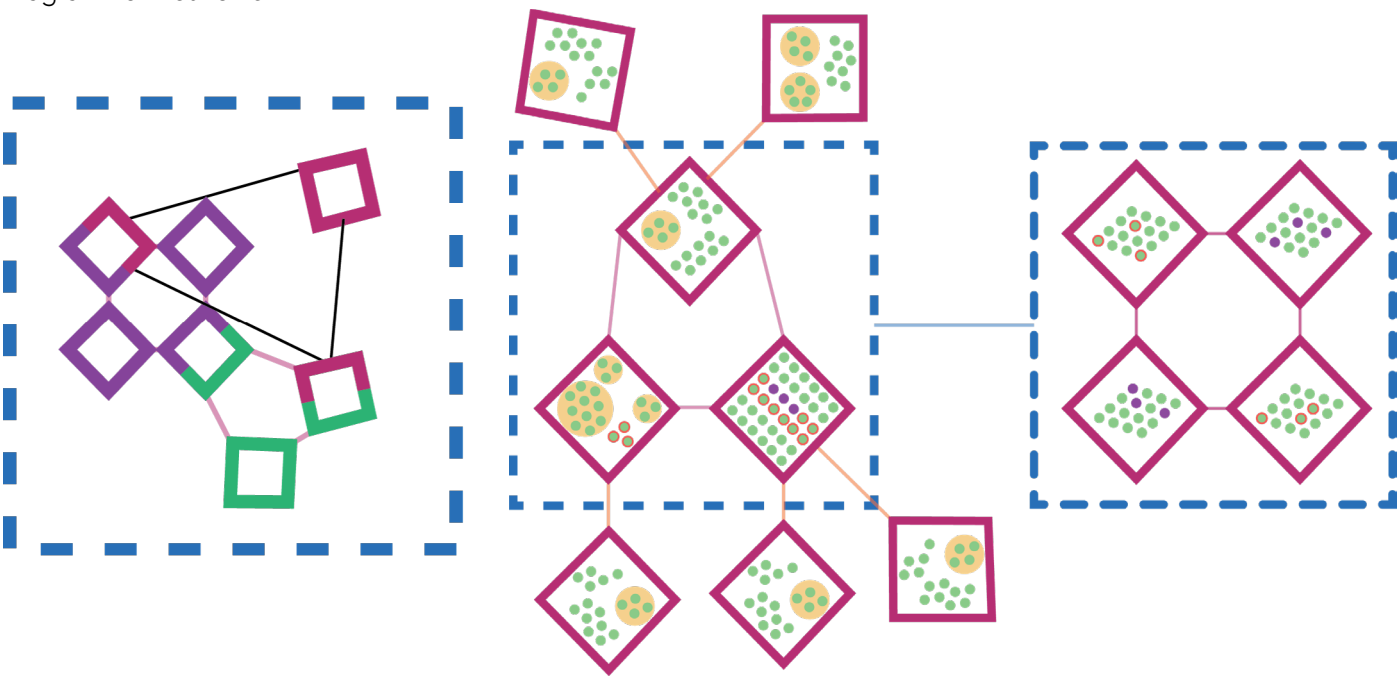
Diagram 27: Alliances



MACRO SCALE: NETWORKS & MATRIX

Network: Following the logic of previous scales, a network represents the connection of at least 2 alliances. In the graphic below of the previously displayed alliances, it was described that the alliances are already partially interconnected via three separate action groups. If this happens, it could be logical to form a network among the three alliances that allows for decision-making and communication collectively among all the action groups. The second graphic in diagram 28 shows two separate alliances, indicated by the pink connection lines, who have formed a network represented by the dashed lines.

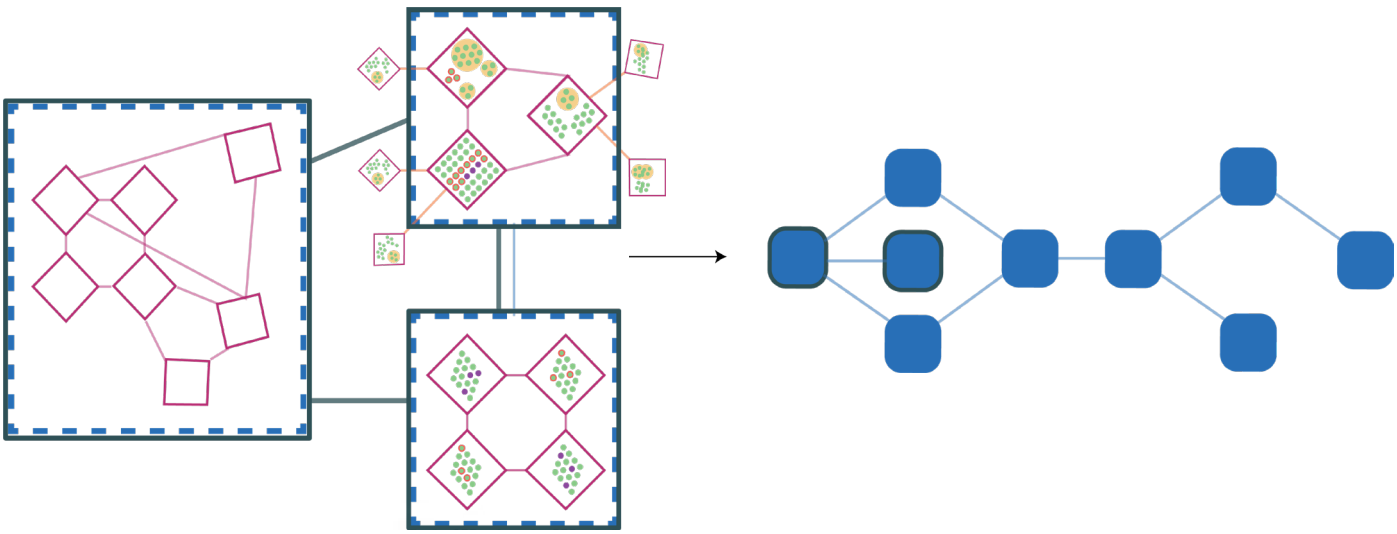
Diagram 28: Networks



Matrix: a matrix represents connections between at least two networks. The first graphic in diagram 29 shows two networks. The large box to the left shoud look familiar. This is the grouping we just saw from the network layer and the alliance layer. The two boxes to the right, one above and the other below, are also from the network graphic. What has happened is that these two networks have joined into a matrix with the the darker outline and darker connection lines represent the matrix. Now these three networks, which represent 5 alliances, 14 action groups (not including the coalitions) can make decisions and communication collectively.

The second graphic takes a bird's eye view and shows the networks in space with several other matrix connections. This scale could be likened to what Wilson (2002) describes as the slow-moving variables of an ecosystem which bind the system in a particular equilibrium. Lower levels of complexity, like alliances or action groups represent faster-moving variables that do not have such a large impact on the broader landscape so long as they are varying and dispersed. If the lower levels of complexity act in a consistent and broad pattern, the higher levels of complexity like matrix can make broad changes to the overall landscape.

Diagram 29: Matrix



COLLABORATION RULES

People use the platform in the way that makes sense to them. If it would be necessary to scale up their work and then they will do that. The platform works on the fundamental premise that people use it however it makes sense to them. I cannot imagine all the ways that it could possibly be used. The goal is to provide a framework with several interactions and possibilities that people get to use and combine in a myriad of ways to meet their needs. Although this sounds like a excuse, it's actually a principle that aligns with the concepts, in that, people are far more capable of governing themselves than they are given credit for and so rules of engagement should be largely determined by users. With that being said, I will not go into too much detail on the exact rules for creating new relationships, voting, decision-making, etc. At this point, the concept of the landscape viewer can only be strategic without further research on interpersonal collaboration and decision-making, and actually seeing it in action. I have gone into detailed thinking, but it seems like there are too many exceptions and unanswered questions to have them written "in stone." So, it is more a broad framework as a starting point. A few basic abilities and the descriptions of specific actions and tools are meant to convey possibilities rather than determined functions. There functionality would require further research.

ACTIONS / TOOL LIST

Actions and tools exist on various scales and more or less actions/tools may be available at different scales.

Tasks: tasks can be created on any level of scale. For instance, a task or set of tasks can exist on an individual member, on a team, action group or higher.

Role: Roles can function to direct communication between action groups or networks to specific people. Roles can also function to accept new members. Although collective action is a key feature, roles can be necessary at times depending on the user's needs.
Projects: projects can function within action groups and inter-action group. A project cannot be shared among action groups that are not connected as decisions based on that project cannot be made collectively without a connection. If an alliance wants to share a project and also wants to include a coalition member of one of the alliance's action groups, that coalition member must become a member of that alliance for that project. After the project is complete, that new alliance can be dissolved as needed.

Vote: voting is based on voting rules. Voting rules can be for example, 2/3rds "yes" required to pass, etc. Voting rules are determined by the lower scale of the interaction. For example, within an action group, individual members create the voting rules. If voting rules have not been established yet, they are discussed via the general chat first.

Voting rules could include a number of votes per member, a designated time, pass/fail conditions. The number of votes per member could be based on roles and roles are voted on, as well.

Vote succession: Voting on proposals could move in succession from the lowest level of organization to the highest. Voting that is ongoing within a certain level of organization, say within an alliance, can progress through that alliance based on the order in which the alliance was formed by its members, in random succession, or it can be done all at once by all members. As the voting moves along, tallies are automatically generated and shown in relation to the voting passing rules of, say, 2/3 approval. The logic of voting (or if voting is the proper mechanism for decision-making at all) is still very much a work in progress.

Proposal: a proposal is a formalized action that must be voted on to be considered complete. A proposal can be deleted or edited before it goes into effect. How soon the proposal goes into effect is determined by those involved but time is available before the proposal goes into effect, should any concerned parties not be available for comment at that moment. If voting on proposals occurs from the smallest scale up to the largest scale, the speed of the process depends on the scale (micro, meso, macro) at which the proposal starts. For instance, if a proposal is made at the level of a coalition, that means that time to complete is likely less than at the network level.

A proposal's function is to determine a clear decision. A proposal can include predetermined tasks or projects, however, if collaboration is at a higher scale, it may be wise to let members, alliances, coalitions or networks self-determine their tasks and projects.

When a proposal begins, the scale necessary for completion is chosen. If multiple connections exist on a particular scale, you can select who to include in the proposal.

USER JOURNEYS

You are working at a company that does manufacturing. You may be at an engineering firm that is international, working on significant projects worldwide and providing high quality, stunning solutions. Your company is one of the best in the field. It is also a part of a network of similarly hard-working and talented companies that use this platform for governance of their network. The network, or "matrix," to use the precise word from the platform, comprises of various suppliers, consultants, community alliances, and governmental actors. Your company uses this matrix to discuss, vote or add proposals and share information that is collectively own and administered. A proposal comes through from within the matrix to agree to supply all new development with 80% renewable energy. This proposal comes from a governmental department. The matrix then has opportunity to agree to bring the proposal to "come to the table" or not. Once it comes to table there is a conversation among participants of the matrix. This is a complex problem that the platform does not currently solve, although the technology is currently available via a digital tool like Kialo. Or, instead of a proposal, an alliance you are a member of has sent information regarding an upcoming event that it would like to share to the others in the matrix. At this level, the scale of communication and collaboration is quite large so not all scenarios make sense at this level.

You are a researcher at Aalto University in Finland. Your research group at the university, which is focused on sustainability, is a team of 10 talented individuals. You form an action group together, communicate and share information via that action group. You are also able to make proposals within the action group and do collective voting. Over time, you realize that there are several other research groups with similar interests who are even located at a nearby university. It makes strategic sense to work together with them so you form an alliance. This alliance is then used to steer the direction of the research field of the Helsinki Metropolitan Area. As this alliance grows in notoriety and word spreads, governmental officials ask to join your alliance to discuss ways of working together. You do this and now the collaboration capacity has scaled up once again, allowing a new kind of impact. Simultaneously, you are a part of an action group related to your specific department. This action group communicates about issues related to your department and is a part of a much larger system of Aalto University, which calls for proposals on a university wide level and your department gets to easily and efficiently discuss and vote on those proposals.

You are a student who has a great idea for an urban farming solution. You create an action group and use the platform as well as personal relationships to find people to collaborate on the idea. Over time, you have twenty people in your action group, many located in other locations around the world, who are collaborating on this particular solution or something closely related. You realize that your ways of working make more sense if you create three separate action groups corresponding to the various locations of the collaborators and then form an alliance together. In this way, you are able to create coalitions to local entities like the action group of Helsinki's urban planning department while maintaining the collaboration of the other groups in the alliance layer. Creating several coalitions over time to local entities who are able to provide needed assistance and expertise, you realize to form another alliance among these local actors. Now, you have an alliance of local expertise to help implement your project locally and an alliance among others international collaborators who are building the same or similar urban farming solution, but semi-independently with their own connections of local collaborators.

DATA COLLECTION

Actions and information at all scales are meant to be quantifiable to foster research into the patterns for certain outcomes. Collection of data for pattern evaluation is one of the main purposes of the platform. All data collection is made public for evaluation by the platform users and non-members.

DISCUSSION

As stated in the beginning context development section, the overt goal of this research is to understand how to enhance the governance capacity (collaboration and communication) of sustainably-minded collective actions so as to enable its growth in competition with organizing principles of capitalism and neoliberalism. As Moulaert et al., put it, the aim is to:

"develop a capacity to recognise and promote socially innovative area development and to understand the extent to which governance initiatives from civil society 'grassroots' are able to grow and expand." (Moulaert, Martinelli, Swyngedouw, & Gonzalez, 2005, p. 1984).

Although grassroots is not solely the focus, this reference is still critical to the overall purpose of this thesis. Similarly, I must finally bring this conversation full circle and discuss the problem framings in relation to the outcomes. As a recap, the problem framings are:

Problem framing 1: To create a more equitable and ecologically sustainable world.

Problem framing 2: There is a narrow window of time to act to avoid potential global catastrophe

Problem framing 3: Therefore, a design intervention would need to focus on more "radical" or "far-reaching" possibilities.

To start with some limitations first, the meaning of terms in the problem framing are not overtly addressed. Problem framing 1 is bold and some could say even naïve. Adding to that, I do not directly address at length the meaning of the words equality and ecological in terms of PF1. What is equality? what is a more ecologically sustainable world? I could have, I think, spent the entire thesis discussing the meaning of equality, for whom it belongs to and how it works. Similarly, I could have discussed at length what a more ecological world looks like. However, discussing these ideals is more valuable in relation to, rather than abstract ideals that stand alone and above. Therefore, I wanted to speak to equality and ecological sustainability in relation to and through the concepts that I chose to evaluate at length. Through these concepts and the synthesis that was made, it should be clear what equality and ecological sustainability can look like, but there is no section with the heading, "equality." Instead, it permeates throughout just below the surface.

A fundamental realization occurred during the overall process which is that the task of this thesis is less on the outcome and more on the research process itself. Useable knowledge is the goal in the end and if there are weaknesses in the work due to too broad a subject matter, which I cannot possibly delve into appropriately, the work as a whole is diminished. Therefore, I have realized the importance of taking a "piece of the pie" that I can actually finish, rather than choosing a topic too broad and ambitious that the end results are questionable. I suppose this is a dilemma that research or any kind of productive work must grapple with. How much time does one plan the process and how much time does one actually do the process? In the terms of research, I suppose having a sound process is paramount because if the process is not sound, the outcome cannot be considered scientifically valuable to its fullest potential. However, I could not focus on everything and this realization became obvious toward the end of the process. In the end, I made a choice to largely focus on the content of a design process, rather than on the process of design itself. It is not a thesis that reflects on what design is but instead practices it. This is necessary for at least two reasons. The main reason is simply the time constraints. To reflexively question the design process and meaning of "design thinking" while also doing the research necessary to understand the context I was dealing with would have added to the work load of the thesis considerably. In the end I think there is a suitable balance. The second is that focusing on my design process or

the exact definitions of words like equality or ecological sustainability would not have contributed scientifically as much as a synthesis of three concepts with broad implications like peer production, the commons and social innovation, a user-centered survey and the creation of new designs for system change.

Given these limitations, this thesis still advances knowledge and understanding in several ways. First, a principle reason for writing a literature review, as stated already by Webster & Watson (2002), is to synthesize an established body of knowledge that could benefit from it. The three concepts, each seen as having quite different logic than traditional capitalist, hierarchical value-creation processes, are not in themselves very novel phenomenon any more. However, their relevance to each other is highlighted in this thesis. Although peer production has a clear link to the commons with the activity of commons-based peer production, social innovation is not compared in relation to the others as processes of value production in quite this way. Further, the goal of highlighting all these concepts was not to determine which is "best," which I think would be counter-productive, but to generate characteristics for organizing value-creation inherent to each in some way that could be used for a design intervention. This is a unique approach.

The process of synthesizing these three concepts yielded the insight of: distributed networks, scale / context, self-organization, autonomy, transparency, and democratization with inclusive participation. These characteristics are highly valuable social organizing principles for the future which extend from activities that have the power to fundamentally change value-creation and society in general. If value-creation, that is, processes of creating something of value for people and planet, were to take these characteristics derived from social innovation, the commons and peer production on a large, even global scale, there would indeed be a very different world than what exists today. These characteristics are highly relevant to social equality. The impact of more equitable social organizational principles can have a multiplier effect in relation to ecological sustainability. As stated in the Common Challenges section, the connection between equity and ecological sustainability is not specifically investigated in depth, but nonetheless, a change in social equity represents a change that could have vast rippling effects and certainly much of the literature in this thesis which examines environmental movements alludes to a connection between equality, democratization, inclusivity and ecological sustainability. The direct link between equality and ecological sustainability could be greatly enhanced from academic literature on environmental governance, which must account for "radical pluralism," or the participation that comes with ever broadening scope of heterogeneous collective action (Paavola, 2004, p. 148). Additionally, environmental governance literature can highlight specifically the link between planning socio-economic systems (equality) and planning life-support systems (ecological sustainability) (Selman, 2002, p. 157). However, in a very clear way, commons literature is about more equal interpersonal relations between individuals as well as power dynamics between scales that has proven to produce ecological sustainability.

As of this writing, there is no definitive answer as to how humanity must organize itself to meet some semblance of sustainability, particularly in regard to equality and the environment. With the contributions of this thesis, social organizing principles in the form of the synthesis of the concepts provide a guidepost for how a future social order for value creation could look. Therefore, the synthesis of values in this thesis is highly relevant to the research of institutions and organization. Ostrom's (1990) design principles, with subsequent critiques and updates (Cox, Arnold, & Villamayor Tomás, 2010), have been a highly influential body of work. This thesis uses related concepts to develop social organizing design principles that complement that body of work. This thesis did not stop there, though.The direct link between equality and ecological sustainability could be greatly enhanced from academic literature on environmental governance, which must account for "radical pluralism," or the participation that comes with ever broadening scope of heterogeneous collective action (Paavola, 2004, p. 148). Additionally, environmental governance literature can highlight specifically the link between planning

socio-economic systems (equality) and planning life-support systems (ecological sustainability) (Selman, 2002, p. 157).

The question of whether or not the design intervention has met the requirements of the problem framing seem clear and rooted in academic literature especially for PF3. If radical change, otherwise considered system innovation (Gaziulusoy & Brezet, 2015), is the goal of PF3 and system level change is "enacted through the coordination and steering of many actors and resources, whether these are intended or emergent features of transformation processes" (Smith, Stirling, & Berkhout, 2005, p. 1492), then given the characteristics of the design intervention – it has aimed directly at radical change. Further, radical or system-change requires change at "deep leverage points" (Meadows, 1999), with "re-thinking the ways in which we approach the production, flows and use of these complex types and sources of knowledge" (Abson & al., 2016, p. 7) identified as a key leverage point. Again, given the characteristics of the design intervention, the possibilities for emergent and novel collaboration which can produce knowledge, then PF3 seems addressed.

SURVEY

A user-centered survey which reveals the organizational innerworkings of associations produced some interesting results.

Associations with the purpose to build community are most aligned with the synthesis of values from the concepts. The purpose to build community had the most inclusion of members. However, the purpose of community shows challenges with handling the increased inclusivity of the association seen in the efficiency score which it ranked last in. Still, community had high satisfaction with communication, so the reduced efficiency may not be much of an issue for these associations.

Associations with the purpose to change society actually had the least affinity to the concepts, including low inclusiveness, but felt internal communication was the clearest and were most satisfied. This could represent a counter-productive organizational model from the viewpoint of the commons, social innovation and peer production coupled with a possible unwillingness to change due to perceived satisfaction. It may also reveal a misguided focus on the outcome of collaboration for these associations, rather than the processes for creating the outcome. The literature review revealed that the processes for creating some kind of value are directly related to the final outcome. If associations with the purpose to change society are not able to adjust their own internal processes which do not align with the concepts which have clear potential for transforming society, then they may be sabotaging their own efforts. Particularly, Smith & Stirling (2018, p. 65) discuss how "innovation processes need to be "opened up" to greater public scrutiny, wider participation, and a more responsible ethics such that the particular directions that innovation takes in any given area become more socially accountable." The overall matrix which combines questions groupings around themes of efficiency, satisfaction and the synthesis of the concepts reveals that the purpose of associations to build community and to change society ranked equally with useful services in last. It seems that a combination of results from community and society, meaning an affinity to the concepts, while still maintaining efficiency and clarity could be fruitful.

The survey revealed several insights related to collaboration and communication, too. Respondents answered that email is the most prevalently used digital platform for decision-making. This could be interpreted several ways. One way is that this form of digital communication has been around longest, compared to newer forms of collaboration like Slack, and so there is a learned behavior that continues even if more adequate and tailored solutions are available.

Another explanation is that email still remains the best solution for communicating/ decision-making. I find this unlikely, though. If the answer is mainly about learned behavior, it shows that onboarding new digital processes may have some difficulties.

However, respondents showed that they have "teamed up" with 10 or more other organizations. This kind of complex collaboration surely could use a tailored solution beyond what email can provide. The complexity of managing the communications / collaborations with 10 or more other organizations must undoubtedly consume a lot of energy of the associations. On top of that, 60% of respondents said they wish to team up with more organizations. Interestingly, they said it would be easy to team up – however, I think this answer refers less to the collaboration that ensues and more on the actual decision to "team up." It's easy to say, "let's collaborate." It's harder to actually do it. Managing communication among these kinds of networks therefore represents a particularly interesting leverage point for positive impact and the design intervention intended to use just that.

Curiously, when comparing based on the purpose of the association, Intra-organizational communication that is clearest has the highest satisfaction. However, Inter-organizational communication that is the clearest has the least satisfaction. This may again be because of the dynamics of associations with the purpose to build community. Internally, there may be certain practices that lead to satisfaction that are not as accepted, encouraged or viable in external communications which may lead to lower satisfaction.

Overall, clarity of communication correlated to higher satisfaction both internally and externally. In relation to satisfaction findings showed that heightened satisfaction correlated to heightened levels of inclusivity, democratization, and autonomy which is striking and potentially impactful information for organizations, groups and companies. This finding makes a strong case for including more people into the governance / collaboration process within companies, organizations or various other actors.

THE PLATFORM

Painting a picture of a future world of equality and ecological sustainability is less meaningful without the means to get there. This is why this design intervention is critical as it lays out a possibility for collaborating toward that future world.

In my view, this platform and these designs form a missing piece of a puzzle in the broader effort to build digital collaboration tools. In terms of current collaboration tools on offer today – the designs presented here are novel. These designs enhance the comprehension of decision-making in networks and visually manages inter/ intra-organization decision-making in a collective, equitable way. There is not currently, to my knowledge, a tool which spatially represents networks and allows for the kind of equitable e-governance that this platform does. Further, the complexity and scale of collaboration that these designs allow are certainly not seen in current digital collaboration tools. An intriguing yet unreported part of the survey is that on several occasions I received several emails from respondents and write in answers in the survey, which referred to federated or at least "umbrella" organizational structures. This aligns with a network-based notion of organization that is certainly in vogue today. With the prevalence of networks, one would think there would be a collaboration tool which enhances the governance and decision-making on this level. Furthermore, one would think that there would be a collaboration tool which responds to the question of inter-scale decision-making.

Due to the sensitivity to scale in the design, what results is essentially an all-encompassing governance tool. The platform can function on the scale of one action group with several individuals broken into teams, or perhaps, on the level of forty action groups which form a vast matrix that make decisions collectively. In this light, the platform separates itself from other digital collaboration tools in that it elevates itself from collaboration among people, or communication among people to something more resembling Governance or Government. A structure is formed with particular decision-making protocols that are equitably made in a quantifiable way (i.e. voting). Although governance exist to some degree in all collaboration, this platform makes that governance explicit and therefore more transparent. Not only is it explicit, but it mimics the real-world workings of value-creation where activities are located in complex and often abstract networks of decision-making. By making governance explicit and visually comprehensible, new understandings about the nature of a user's collaboration could be possible. This structure also enables organizations and groups to form new partnerships and make decisions with others in completely new networks, as well.

With this being said, I think the design intervention clearly related to problem framing 1 in that it creates a mechanism for broad collective action and decision-making. With increased access to the power to make decisions collectively, enabled by technology, a more equitable system is created. The people involved can stir change in any number of ways that was not possible before the heightened inclusivity. As stated, this could have impacts on ecological matters, as well. The description of the platform should also convey the fact that it does indeed align with problem framing 3 as the idea of a multipurpose governance tool certainly has radical implications.

However, I think that the usability of the platform is still a large unknown. For instance, the activities on the platform may be limited to more strategic-level decision-making. It may be the case that strategic-level communication exists purely at higher scales and that tactical, detail level communication is for lower scales. Without further development, this is very difficult to know. To get over the current knowledge gap about the usability of the platform, further development would prosper from continuing in a design-thinking mode which allows for iterative cycles of feedback, learning and prototyping. The potential seems vast but still unknown. Many questions still exist on a detailed level – but are not necessarily warranted as of yet. With further development, getting into the exact mechanisms for collective decisions would be a first step and much could be gleaned from looking at current digital decision-making tools and then adapting or incorporating.

APPENDIX

SURVEY QUESTION LIST

What is your role in the association?

1. When was your association created?
2. What is the approximate number of people in your association?
3. Which one of these statements best fits the purpose of your association as a whole?
    - To have fun
    - To make money
    - To make people happy
    - To offer useful services To change society
    - To subvert "the system"
5. To what degree is your association focused on societal transformation?
6. To what degree are all members of the association involved in key decisions?
7. How messy vs clear is the communication within the association as a whole?
8. How satisfied are you with the communication within the association?
9. To what degree are you satisfied with the association's ability to turn debate among members into decisions?
10. To what degree are you satisfied with the association's ability to turn decisions into concrete action?
11. To what degree do you have an effective process in place to allow members to create new projects?
12. To what degree do you have an effective process in place to establish rules that all members have helped to create?
13. To what degree are decisions made in person versus digitally?
14. Please select all the purposes you use digital tools for within the association:
    - Do not use digital communication tools
    - Documentation
    - Decision-making
    - Leisurely Chatting
    - Scheduling
    - Funding
    - Coordinating
    - Other (please specify)
15. Approximately how many digital platforms do you use for communicating to members of your association?
16. For decision-making, which digital platform(s) do you use?
    - Facebook groups / pages
    - Facebook messenger
    - Whatsapp
    - Email: gmail, hotmail, etc.
    - SMS
    - Slack
    - Loomio
    - Kiala
    - Do not use digital tools for decision-making Other (please specify)
17. Does your association communicate with other organizations?
18. If your association communicates with other organizations, how messy vs clear is that communication?
19. If your association communicates with other organizations, how satisfied are you with that communication?
20. Do you wish to "team up" with other/more organizations?
21. Approximately how many other organizations have you "teamed up" with?
22. If you were to "team up" with other/more organizations, what would your reason(s) be?
    - Fun to meet more like-minded people
    - More can be accomplished with more people involved
    - Other skills are needed
    - None of the above
    - Other (please specify)
23. If you were to NOT "team up" with other/more organizations, what would your reason(s) be?
    - Collaboration would be too difficult
    - It takes time to develop partnerships
    - We do just fine on our own
    - Other people don't want to "team up" with us
    - We already have enough partnerships
    - None of the above
24. Do you feel that it is easy to "team up" with other organizations?

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